

THE

# Desert

M A G A Z I N E



APRIL, 1945

25 CENTS





*Primrose in the Dunes. Copyright Photo by Stephan Willard of Palm Springs.*

## And There Were Those

By HELEN L. VOGEL  
San Diego, California

And there were those  
Who could not see for sand  
That here a rose  
Could bloom as on black land.

They could not sense  
The stirrings of rebirth  
Beneath the crust  
That hides the desert's earth.

So those passed on,  
Passed on to greener fields  
To plan and build,  
To garner lesser yields.

But those who stayed  
Through dirt, through heartbreak, yet  
Found richer life  
Than all those others met.

For even those  
Who grew not rich but old,  
A pension had  
Of full life, more than gold.

Still there are those  
Who cannot see for sand  
The trails that lead  
Into their promised land.

### COME SPRING

By MARION ESTERGREEN  
Albuquerque, New Mexico

One feels the inward throb of spring,  
The bitter tang of winter goes;  
It rides out on the gale of March  
And sweeps away chill snows.

The rains pour down and buds burst forth,  
Bright tulips line a flower bed;  
As life shoots up from cold, dead earth,  
Spring lifts her sleepy head!

• • •

### DESERT TRAGEDY

By NELL COX  
St. George, Utah

A skeleton, shovel, and pick we found  
Where our car had left the desert trail.  
In awe-struck silence I gazed, and then  
I seemed to know the piteous tale.

This bearded prospector, worn and gaunt,  
Had wandered thirsting for days untold  
'Til he fell at last on this lonely spot  
Clutching his meager store of gold.

Perhaps the mirage of a distant lake  
Came to mock his great despair.  
He'd give his gold indeed to slake  
The horrible thirst that grips him there.

Gold has ever been the lure  
Which entices men to risk their lives.  
One finds gold and one finds naught  
And he is fortunate who survives!

### DESERT LANGUAGE

By CHARLES F. THOMAS, JR.  
Mancos, Colorado

This strange land! Some name you desert!  
Lone! Forbidding! Dreary and dread!  
Some see but a sphinx unspeaking,  
Cruel! Heartless! Silent! Dead!  
Some see naught but blinding glare  
Cast across brown sands and hot;  
Find no beauty in its vastness,  
But a land that God forgot!  
Yet sweet music comes to gladden  
Those who know the desert land.  
Wondrous vistas for the seeking;  
Beauty spread with lavish hand.  
In its solitudes find solace;  
Through its trials win strength and rest.  
It, with secret, mystic whisper,  
Speaks a language rare and blest.

• • •

### FROM A CAR WINDOW

By ARTHUR C. AGERN  
Las Vegas, Nevada

I counted one, I counted two,  
I counted three, then four  
But soon they passed so rapidly  
I counted them no more.

They sat up straight, they flicked their tails,  
They frisked about and ran  
And dove into their mystic realms  
As only ground squirrels can.

The ground seemed almost honeycombed  
Along the desert swirls,  
Now would it be hyperbole  
To see a million squirrels?

### JOSHUA TREE

By GEORGIA MOORE EBERLING  
Pueblo, Colorado

As black as night against the sunset sky  
The branches of the Joshua tree writhe. High  
Against the crimson clouds its twisted limbs,  
The night and wind and storm and dust defy!

For ages it has stood, to typify  
Eternal life, it was not meant to die.  
Its tortured branches chant the desert hymns,  
Its murmur is the desert's lullaby.

• • •

### WATER ON THE HIGHWAY

By EARL L. DAVIS  
Los Angeles, California

Driving through Mojave sands;  
Sun is shining bright;  
Sky is blue as indigo;  
Everything seems right.

All at once ahead of me  
Shimmering in the sun,  
Water on the highway  
Seems to spread and run!

Do I stop my journey,  
Search for hat or wrap,  
Turn around and run away  
To avoid the trap?

No! I rather speed ahead,  
Smiling all the way:  
Knowing that mirages  
Cannot spoil my day!

# DESERT Close-Ups

• Sherman Baker, who has served in the Army since he last contributed to DESERT, will have another article published soon. This time he has written about the historic trek of the Mormon Battalion, which ended at San Diego in 1847, opening the first wagon road through the Southwest to California. In order to add new material to a subject which has received much attention from historians and other writers, Mr. Baker has carried on voluminous correspondence and has consulted the diaries of some of the Mormon soldiers on the march.

• Richard Van Valkenburgh first met Frank Walker when he persuaded the Navajo-Irishman to aid him in a U. S. Indian Service project as interpreter. But after many camps together, as they spread their bedrolls on barren mesas or in the shade of cottonwoods along Arizona streams, they became close friends, and through the years Van has been able to piece together the fragments of Walker's colorful life. Next issue of DESERT will include Van's story of his friend, whose career as interpreter began at the age of fourteen.

• Using the complete journals of the Powell Colorado river expedition as his source material, Charles Kelly in this issue gives a new version of the ill-fated trio who left the Major Powell party at what is now known as Separation Rapids. Kelly believes that previous versions of this incident fail to give the three men the credit due them. He says that while his version "may put a few dents in Major Powell's halo, I believe it presents a true picture of what took place at Separation Rapid in 1869."

• Dr. Frank C. Lockwood, dean of Arizona historians and contributor to DESERT, has written a new series of intimate biographical and character sketches of ten Arizona pioneers, with special reference to the part they played in the life of the old silver mining town of Tombstone, Arizona. The articles are currently appearing in the weekly *Tombstone Epitaph* and include John S. Vossburg, John A. Rockfellow, John P. Clum, Wyatt Earp, Wm. M. Breakenridge, James C. Hancock, Endicott Peabody, Jeff D. Milton, Ed Vail and Alfred C. Lockwood.

• Latest DESERT writer to have a book published is Louise Baker (Mrs. Sherman Baker). The book is based largely on her own life in California telling the story of small town life about 25 years ago, as seen by a telephone operator, hence the title *Party Line*. It is being published by Whittlesey House.

## CREED OF THE DESERT

By JUNE LEMERT PAXTON  
Yucca Valley, California

Blinking stars are candles in the sky;  
Crescent moon is cradle-like, and high.  
Dainty robes, the fleecy clouds imply,  
And desert breeze is baby's lullaby.



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On August 28, 1939, Julius F. Stone and a party voyaged to a point in Lower Grand Canyon near the head of Lake Mead and placed a tablet on the canyon wall. This plaque was in memory of three members of the first Powell expedition in 1869 who quit the boats and climbed out of the canyon. For many years following the Powell exploit, these men were regarded as deserters. More recently however, opinion has gained headway that there was justification for the decision made by the three who left. Mr. Stone is among those who believe the men were unjustly accused—and here are some of the reasons for his conclusion.

By CHARLES KELLY

## *The Three Who Lost*

**E**IGHT men were with Major John Wesley Powell when he launched his first exploring trip into the unknown canyons of the Colorado river in May, 1869. Forty-nine years later, on May 20, 1918, when a bronze tablet in Grand Canyon national park was dedicated to the memory of Powell and his companions, the names of only five of the original crew were engraved on the plaque.

And here is the story of the missing men, the three boatmen who left the expedition two days before the passage of the canyon was completed, at the place now known as Separation rapids, climbed out of the gorge and met with tragic death.

Public opinion had branded the men as cowards and deserters, unworthy of remembrance. But there is evidence of record to support the conclusion that this was an injustice to the men.

Powell's report for many years was the only available account of that heroic journey, and because of the author's high standing in scientific and government circles it was accepted without question. But since his death additional information has been uncovered which throws an entirely different light on the events at Separation rapids. These new sidelights are contained in journals of various members of that expedition, unearthed and collected by Robert B. Stanton, Julius F. Stone and others. Stanton and Stone, convinced that the three men who left the party at Separation rapids had been done a great injustice, determined to correct the popular error. Stanton did so by compiling the facts in a book titled "Colorado River Controversies." Stone personally erected a tablet to their memory.

Powell's expedition left Green River, Wyoming, on May 24, 1869, in four small boats, to explore and map the Colorado river, whose course was then little known, although trappers and explorers had reached its banks at various places. After many thrilling experiences and some minor disasters in the swift rapids of Lodore, Desolation, Cataract and Marble canyons, the nine men entered Grand Canyon, where their troubles really began. As they

proceeded through the deep gorge from which there was no exit, each rapid ap-

peared worse than the one before. Their frail boats were almost hammered to pieces on the rocks. To complicate matters still further they ran short of food and were compelled to perform the most strenuous labor on half rations or less. Having once entered the canyon there was no alternative but to go forward, yet that seemed at times almost impossible. Under such conditions it is no wonder that some of the men and even the leader himself should become discouraged and dispirited.

In Powell's official report there is no hint of any friction in the party until they reached Separation rapids, but other journals of the expedition present a different picture. According to these records Powell, who had been a major in the Civil War, was egotistic and dictatorial, trying to en-





HERE ON AUGUST 28

1869

SENECA HOWLAND,

O. C. HOWLAND

and

WILLIAM H. DUNN

separated from the original Powell Party, climbed to the North Rim and were killed by the Indians.

For further authentic information see "Colorado River Controversies" obtainable from Universities libraries.

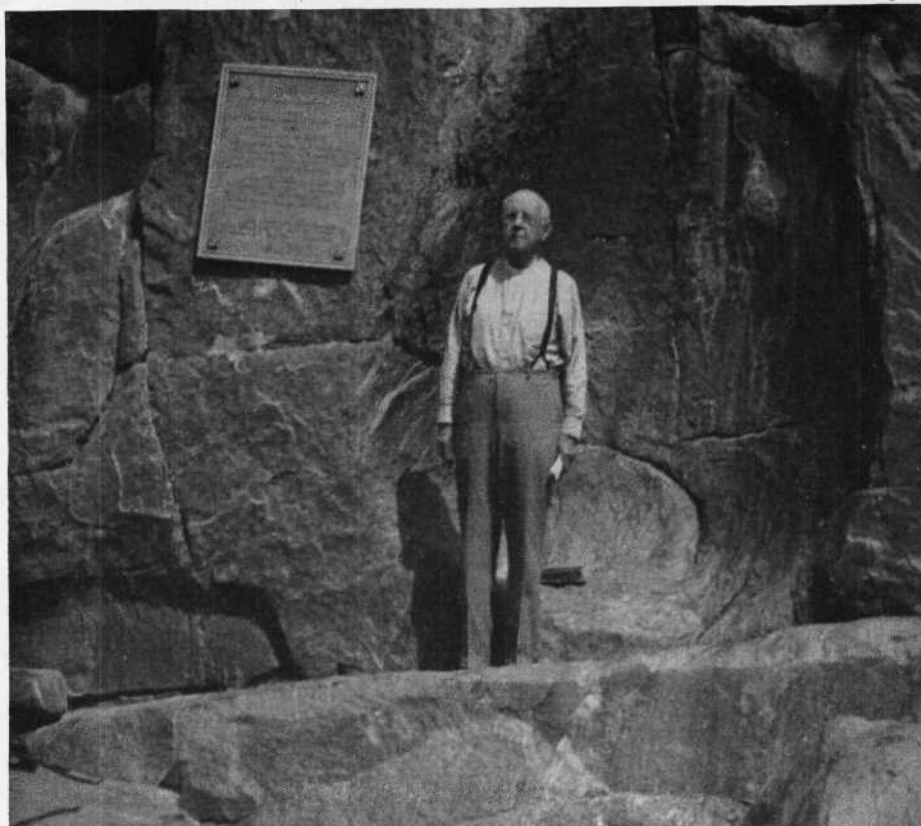
This Cenotaph was placed and dedicated in 1939 by later Colorado River Voyagers.

*Text on the plaque.*

force unnecessary military discipline upon his men, some of whom had previously lived the free and independent life of trappers and Indian traders in the mountains of Colorado. These men naturally resented their leader's ideas of military courtesy, particularly when he would not eat at the common mess and made his bed apart from the others. As time went on the man-killing labor and short rations made tempers short, resulting in several outbreaks. The major seems to have had some disagreement with O. G. Howland who, besides his regular work with the boats, was doing topographical work and sometimes could not keep up to date. William H. Dunn was another target of the leader's wrath, which boiled over when Dunn fell into the river while carrying the major's expensive watch. On that occasion Powell is reported to have ordered Dunn to leave the expedition or pay \$50 a month board for the remainder of the trip. This order angered the men, since it was impossible to get out of the canyon and the "board" consisted at that time of a half ration of mouldy flour baked without soda or yeast and a few dried apples.

By force of necessity Dunn continued with the expedition while Jack Sumner, who had originally induced the major to make the journey, tried to act as peace-maker. But Dunn, smarting under the unjust order, determined to obey it at the first opportunity. His friend, O. G. Howland and the latter's brother, Seneca Howland, agreed to accompany him.

After fighting the swirling waters for double the supposed length of Grand Canyon and with no end in sight, the party finally reached a rapid which appeared more wicked than anything encountered up to that time. The boats could not be carried around it, and to run through that seething water seemed humanly impossible. Camp was made at the head of this rapid and its roar throughout the night did nothing to improve the spirits of the men.



*Julius F. Stone speaking at dedication of memorial tablet placed at Separation Rapid on August 28, 1939, 70th anniversary of the separation which took place there. Photo by Dr. R. G. Frazier, 1939.*

This rapid, now known as Separation, was caused by a great accumulation of rocks thrown into the channel from two side canyons coming in from the north and south. The northern canyon seemed to offer a possible means of escape. If its walls could be scaled, a way might be found over the plateau above to some Mormon settlements on Virgin river.

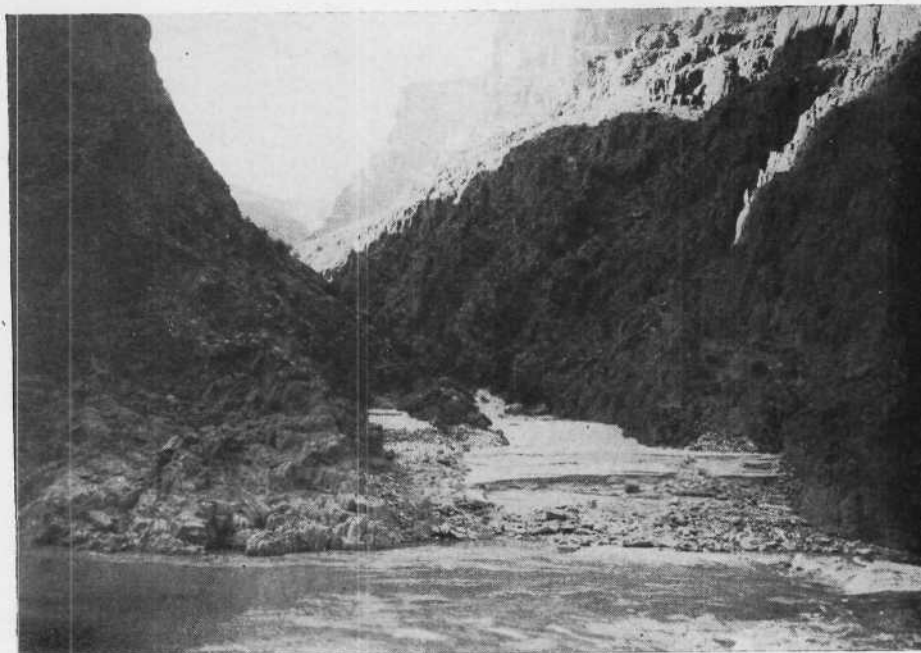
That evening, after a scant meal of hard-tack, O. G. Howland called the major aside and informed him that he, his brother and Dunn had decided to leave the canyon and try to make their way overland to the settlements. When the other men learned of this decision there was little sleep in the camp.

After considering all available evidence it seems practically certain that Major Powell himself seriously thought of giving up the expedition and leaving the river at this place. Only enough food was left for a day or two, and no one knew how soon they could obtain fresh supplies or what worse difficulties might lie ahead. Speaking of this incident Powell says: "At one time I almost concluded to leave the river." One of the men, Hawkins, states that he finally persuaded the major to continue. Jack Sumner, who had helped organize the expedition, was strongly in favor of continuing by river and it was no

doubt his faith in the enterprise which eventually convinced the others.

In the morning, when the three men persisted in their determination to leave, Powell gave them three guns, part of the remaining food, a chronometer, some watches, and a duplicate record of the expedition. All three were good hunters, familiar with Indians, and no unusual fear was felt for their safety. Of this parting Powell says: "Some tears are shed; it is a rather solemn parting; each party thinks the other is taking the dangerous course." There was no hint of desertion or cowardice. Dunn was obeying orders to leave. The other two went along for safety. True, the rapid below looked worse than anything they had yet seen, but it was not fear of that rapid nor physical cowardice which caused the three to leave. If such had been the case Powell would have named the place of parting "Desertion." Instead it was "Separation," each division taking what it believed was the best course. The date was August 28, 1869.

O. G. Howland, Seneca Howland and William H. Dunn stood at the head of the rapid as the other men pushed their boats into the swirling stream. The place was not as bad as it looked from above and in a very few minutes all had passed through safely, landing below where they waited to



*Looking up the side gorge coming in opposite Separation Creek. At camp here on August 27, 1869, three of Powell's men decided to leave the party and try to go out overland. Julius F. Stone photo, 1909.*

see if the three men would change their minds and follow. When Howland signaled for them not to wait, they reluctantly pushed on down the river and in two more days of difficult travel reached the mouth of the Virgin, where they met Mormons from the settlements and obtained fresh supplies. Here the major and his brother, Walter Powell, decided to leave the river, as the other three had done above, and the expedition was officially terminated.

But Jack Sumner and the other three men were determined to see the thing through to the bitter end, regardless of the major's "separation," and in due time Sumner had the satisfaction of reaching tidewater in the Gulf of California, thus completing the journey he had first proposed.

Nothing more was heard of the Howlands and Dunn for over a year. Then Jacob Hamblin, Mormon scout, came into Kanab with a report that all three men had been killed by Shivwit Indians. Powell later visited the Shivwits, with Hamblin, to learn details of the tragedy. According to the Indians, the three men succeeded in reaching their village, much worn and half starved. They were fed and given a place to sleep. A few weeks previously some prospectors had mistreated several Indian women and the Shivwits killed the three white men for revenge, according to Indian custom. Powell listened to their excuses, apparently forgave them, and the incident was closed.

While he never directly accused them of cowardice or desertion, his omission of certain facts allowed the public to con-

clude that the two Howlands and Dunn had received their just dues.

When Robert B. Stanton went down the Colorado river in 1890 he discovered many discrepancies in Powell's report and determined to collect all possible information on the Powell expedition. As a result he uncovered individual journals of the men who accompanied Powell and after studying them came to the conclusion that a great injustice had been done the Howlands, and Dunn. His carefully compiled book absolves them from any charge of cowardice.

But this vindication could not add their names to the memorial tablet at Grand Canyon. To compensate for the omission, Julius F. Stone, who first went down the river in 1909 and whose latest voyage was made in 1938, erected a tablet to their memory at the exact spot where they parted from their companions. Construction of Boulder Dam had backed up the waters of Lake Mead until the lower end of Separation rapid was submerged. Carrying his memorial plaque Stone chartered a power launch and proceeded to the extreme head of Lake Mead, where the tablet was securely fastened to the cliff in commemoration of the separation which took place there.

It was dedicated August 28, 1939, exactly 70 years after the historic parting. Julius F. Stone, who carried out this project as his personal contribution to Colorado river history, is author of the beautifully illustrated book "Canyon Country."

The only other memento of these three unfortunate men is found in a grotto called Music Temple, two miles below the mouth

of San Juan river, where their names, cut in the rock in 1869, are still faintly visible although badly eroded by the elements.

Partly because of the tragic incident connected with it, Separation rapid has earned a bad reputation. Stanton, who was there on March 13, 1890, says it was one of the worst spots he had seen on the river. It had to be run since there was no way to get boats around it, due to sheer walls. At the lower end he was thrown into the water and narrowly escaped drowning.

Stone stopped there November 13, 1909, to take the photos accompanying this article, but ran it without accident. In 1911 the Kolb brothers portaged part of it and ran the rest, striking a large rock at the foot, but without serious damage. Norman Nevills, who has run it several times, says it presents a different problem at each different stage of water. Dr. Russell G. Frazier's party ran it in 1934 at the lowest recorded stage of water, when the entire rapid was staggered with protruding boulders, making it necessary to row back and forth from one side of the channel to the other. They got through, however, without accident and without unloading the boats. At that time it would have been possible to walk around the rapid, along the north shore, but this was an unusual condition.

In 1928 Glen R. Hyde and his young bride started down the Colorado river on a honeymoon voyage in a 20-foot scow controlled by sweeps at each end. Because of his previous experience on Salmon river he anticipated no difficulty, and succeeded in reaching Bright Angel creek without accident. But when the couple failed to appear at Needles on schedule, a plane was sent upriver to look for them. Their empty boat was seen stuck on a rock in Separation rapid. A searching party later found the boat and contents intact but never any trace of the couple. Mrs. Hyde was the first woman ever to attempt the Colorado river rapids.

Major Powell was correct when he said: "Each party thinks the other is taking the dangerous course." If his party had been lost in the rapids below, and if the three men who went overland had not been killed by Indians, O. G. Howland, Seneca Howland and William H. Dunn would have brought out the only record of that first expedition and would have been acclaimed heroes. It could easily have happened that way.

Only a handful of adventurous persons will ever see the tablet erected at Separation rapid, but Julius F. Stone has the personal satisfaction of knowing their names have been preserved to future generations and their memory cleared of the charge of cowardice and desertion. Their tragedy was that they guessed wrong.





*Far off the beaten tracks of the Southern California desert is the oasis of Seventeen Palms—nestling at the base of the Santa Rosa mountains.*

# Up Arroyo Salado to 17 Palms Oasis

Motor touring in Borrego badlands is a thrilling experience—especially when rains have softened up the arroyos which serve for roads in that area. But there is a historic old waterhole over in the heart of the eroded mudhills of the Borrego country—and here are the directions for reaching it, including a few hints as to what kind of hazards may be encountered along the way.

By RANDALL HENDERSON  
Photos by the Author

**I** DID not intend to write about 17 Palms oasis this month. This April story, the fourth in the Desert Magazine's series covering the native palm oases of the Great American desert was to be devoted to Palm Wash.

Now it happens that both 17 Palms and Palm Wash are in the Borrego badlands of Southern California—and at certain times of the year those badlands are treacherous ground. It also happened that instead of an exciting little jaunt up Palm Wash, as I had planned, I spent the afternoon digging my car out of an oozy little cienaga several miles away . . . But I am getting ahead of my story.

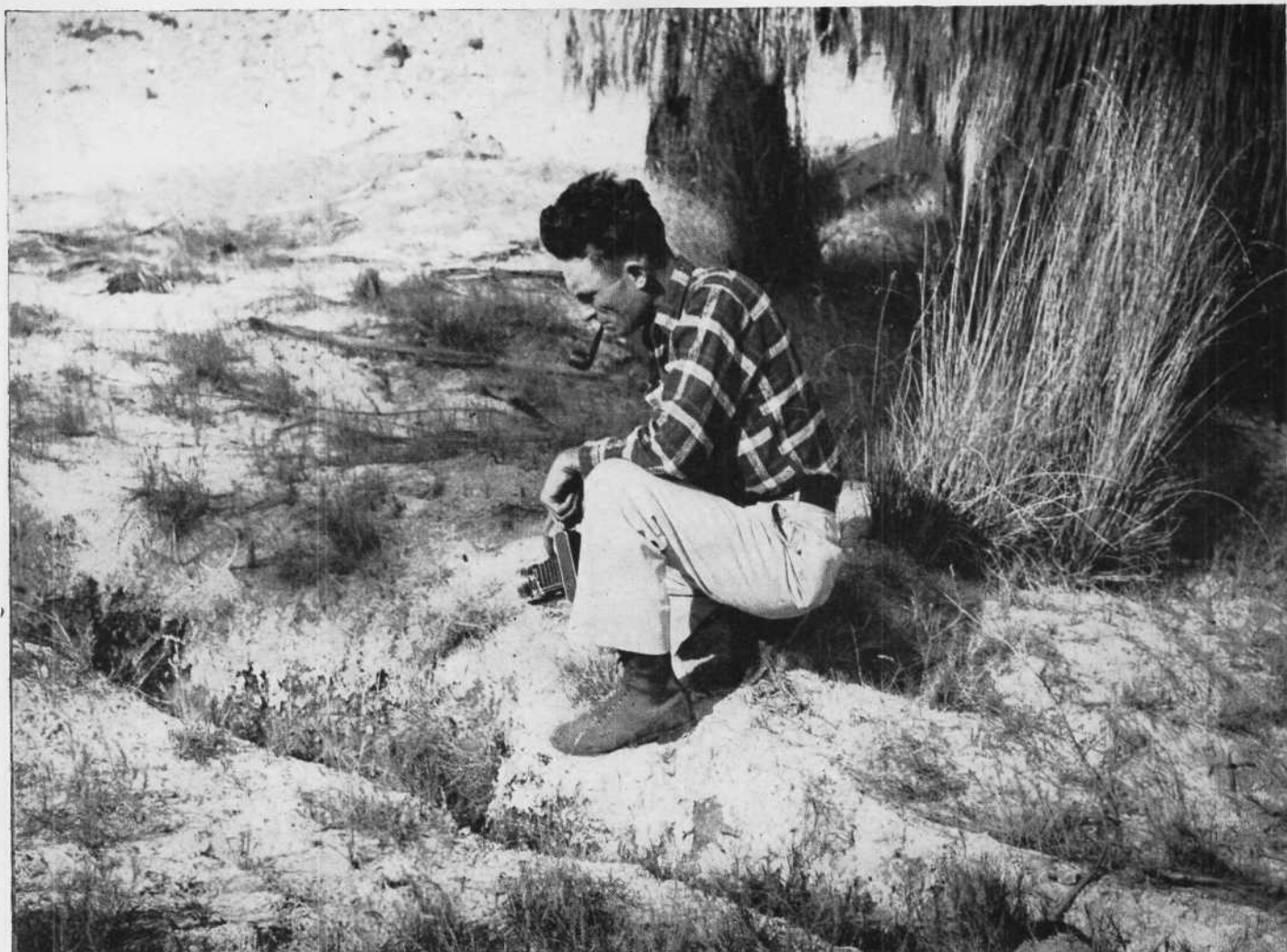
Arles Adams was my companion on this trip into the Bor-

rego country. Arles is a good pal to have along. He not only savvies the mysterious inner workings of an automobile, but he is a good hand with a shovel. And sooner or later on these desert trips I usually get mired down.

We decided to go into the badlands the back way. The rear entrance in this case being what is left of an old road which "Doc" A. A. Beatty, pioneer citizen of Borrego, promoted 25 years ago. This road connected the present Highway 99 near Truckhaven with the old Beatty homestead in upper Borrego valley.

There isn't much of the old trail left—just a few ruts here and there. It never was much of a road—and today most of it is impassable. If the state legislature and the governor of California approve the state park budget which is now up for consideration, this route is to be restored with an oiled macadam highway, for this is in the Anza Desert state park. But the bill at Sacramento did not help Arles and me on our recent trip.

We spent Saturday night as the guests of Ruth and Noel Crickmer at the Borrego Desert lodge. Before daylight the next morning we were on our way along Doc Beatty's old road toward Truckhaven. The trail is passable as far as Arroyo Salado and it was our plan to travel down the arroyo past 17 Palms to Highway 99, then turn back along the paved road to Palm Wash and spend the day exploring that interesting region.



*Arles Adams pauses beside the salt-encrusted spring at 17 Palms where normally the water is too brackish for human use.*

Everything went along as planned—up to a certain point. We found the trail rocky and hard to follow in places, but after we reached Arroyo Salado we were on the downhill grade, and by nine o'clock we were eating a camp breakfast in the shade of a Smoke tree at 17 Palms oasis.

The palms actually are in a little tributary canyon which comes into the main arroyo from the west. As we turned into the narrow side gulch we were eager for a first glimpse of the trees. Neither of us had been there since Pearl Harbor, and there were rumors that bombing pilots from one of the desert training fields had used the palms as a target.

In justice to the Air Corps I want to dismiss those rumors as pure fiction. The palms were intact. There was water in the spring—and I have never seen the oasis cleaner and more inviting than on this trip.

When J. Smeaton Chase visited this waterhole in 1918 (California Desert Trails), he reported that the place was strewn with cans and bottles. But today there is no litter to destroy the charm of this remote oasis. The average camper today, I believe, is more thoughtful in the matter of cleaning up his camp debris than was the prospector of an earlier period.

Probably few visitors have gone to 17 Palms during the past three years, except perhaps soldiers whose bombing targets are but a few miles away. But in a glass jar cached beneath the skirts of one of the palms we found a package of cigarets and matches—left there in recent months by C. M. Lewis and party of Westmoreland. The jar also serves as a register for visitors,

and the latest names in the glass container were those of Mr. and Mrs. C. P. Stillwell of Ontario and Barney and Kay Barnes who had camped there New Year eve. The tobacco evidently had been cached for the first wayfarer who needed it—and we left it undisturbed.

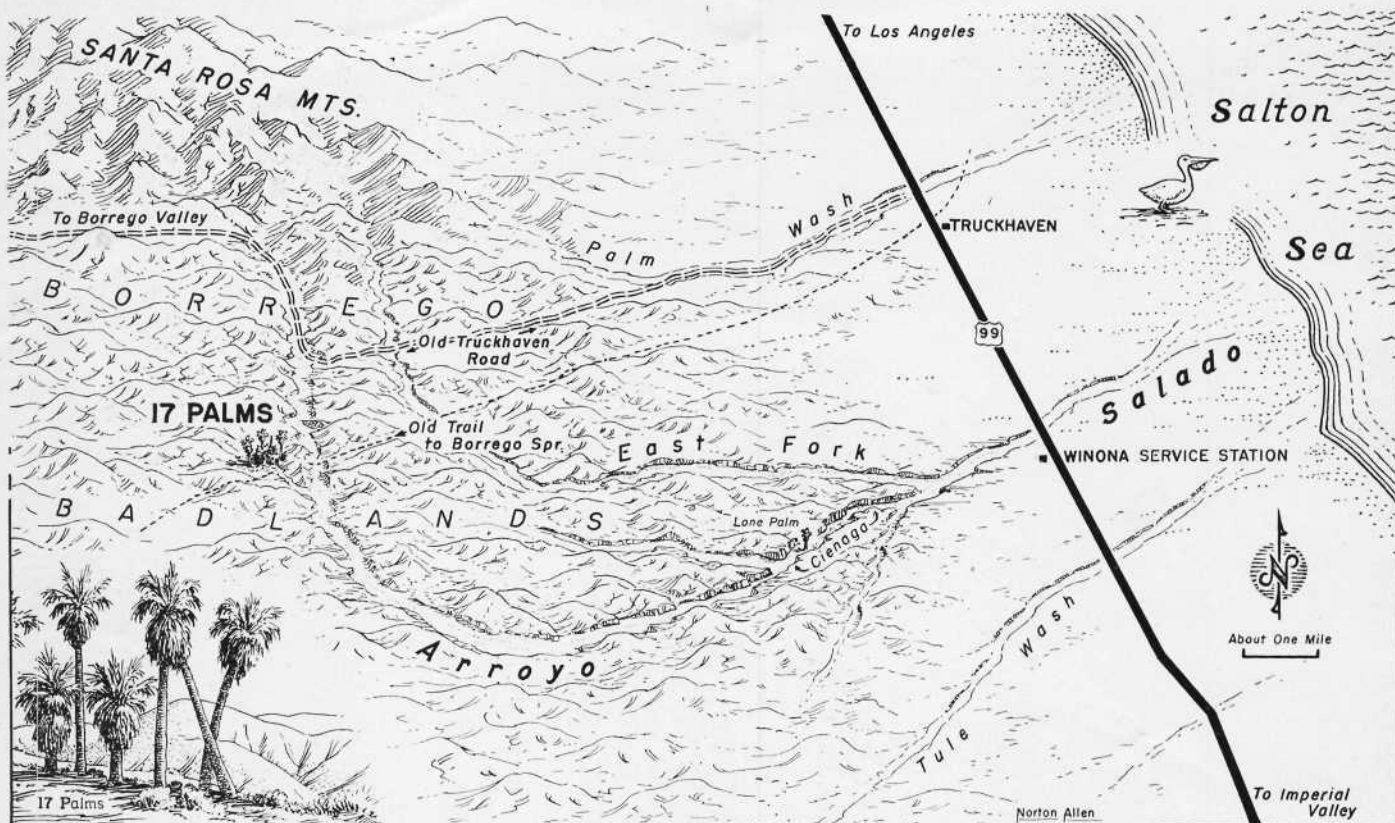
A U. S. Geological survey bench mark near the oasis gives the elevation as 410 feet. Evidently there has been a corrected survey since 1918 as Chase reported that the marker read 417 feet at the time of his visit. The Cahuilla basin is settling.

Visitors should never go to 17 Palms expecting to find good water. The soil is white with alkali, and the water in the spring is bitter. I have no doubt that if someone were to clean out the hole daily for a couple of weeks the water would become usable. But at best it probably would be brackish.

Obviously 17 Palms derived its name from the number of trees found there at an early date when Indian trails led gold-seekers to the spot. Likely that was more than 100 years ago. Chase reported that he found "six or eight" palms at the time he camped there. Today there are five shaggy veterans, scarred with the flames of many fires. Also one headless trunk which has died since I first visited the oasis 10 years ago.

But while the old generation of palms is slowly disappearing, there are 25 young trees ranging from two to 20 feet in height. Only one of these has been burned, the others having skirts of dry fronds that reach to the ground. Palms thrive on water too salty for human use—and the younger trees appear healthy and well fed.





*A lone palm in Arroyo Salado is the marker for a cienaga where the motorist may have trouble following a heavy rainstorm.*

When the sun is right, the clay hills in the vicinity of this oasis sparkle with calcite and gypsum crystals, and occasionally one finds a chip of petrified wood in the vicinity. Vegetation is sparse on the red and yellow hills of the highly-eroded Borrego badlands—but in the arroyos there are Smoke trees, catsclaw, mesquite, arrowweed and a marvelous assortment of sandstone concretions.

There is neither road nor well-defined trail into 17 Palms—you just follow the wash to get there. The oasis may be reached by car from two directions—the back way in from Borrego valley and down the dry water-course as Arles and I went, or up the wash from Bridge No. 5813 on Highway 99. It is a rugged trip for an automobile either way.

Going upstream from Highway 99 it is 12 miles to the oasis—but that is not a trip to be undertaken soon after a rainstorm. For there are treacherous sands in Salado—sands and clays that have no bottom when they are saturated with water.

We spent an hour at the oasis. Then started down the wadi with no car tracks to follow. It had rained since the last previous visitor was there, and the sandy floor was swept clean. But the sand was well packed, and it was not hard to follow the route for there are precipitous clay banks on both sides.

We knew from previous experience that there was a soggy cienaga between those clay walls at a point well down the canyon. We were sure we would know the place because it is marked with a lone palm tree—growing there miles away from its nearest relatives of the palm family.

We were still some distance above that tree when suddenly, without warning, the bottom dropped out from under us. The car came to an abrupt stop with the wheels buried to the axles in a gooey slime of sand and clay. There was dry sand on the surface—but it was merely camouflage to cover the villainous quagmire beneath.

We got out a pair of old Model T running boards which I carry for such emergencies. But they were useless. The weight

of the car merely crushed them down out of sight in the ooze, and we later had to do a job of excavating even to find them.

There is only one formula I know for such an occasion. Jack up the car and build a road under it, with the best materials available. There is an abundance of sandstone in Arroyo Salado—concretions and slabs and boulders. First we had to build a rock foundation for the jack. Then while Arles began mucking out pits for our new roadway, I combed the landscape for rocks. I don't know how many I carried that day—but it was enough to build a two-track runway from the car to the nearest hard ground—and that was a lot of rock.

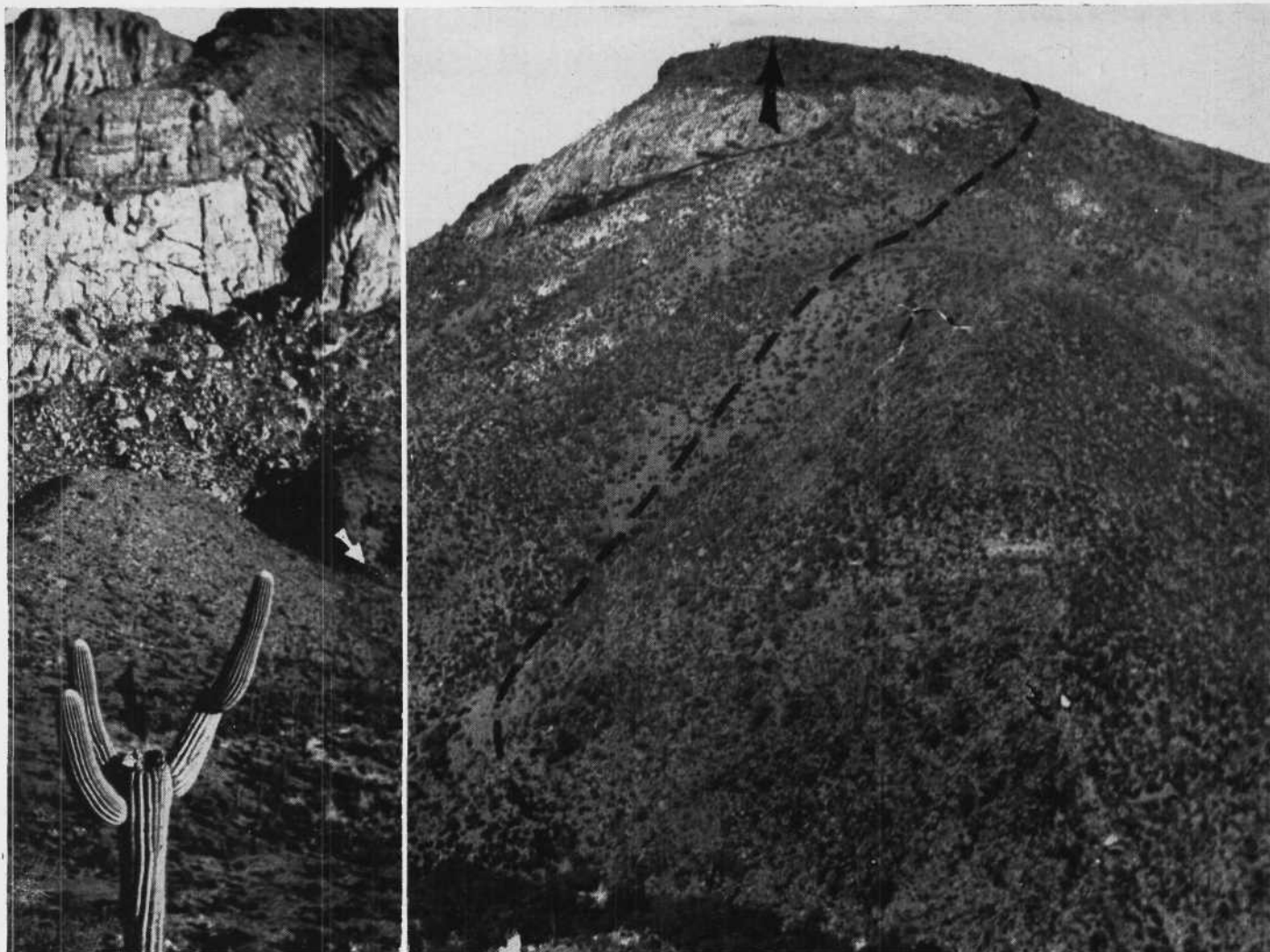
Packing boulders isn't such a bad pastime—especially if you have been in the army. As far as I am concerned it beats those bending exercises we had every morning while the slave-driver out in front of the squadron counted "one-two-three-four," over and over again. When I am toting rocks on my own I can heave them up in two counts or six—just whatever I feel like—without taking any dirty cracks from anybody.

So finally we reached dry land. But the day's work was not over yet. One of the clay banks had caved off ahead of us, and we spent another hour scooping out a trench wide enough for the car to pass through the barrier.

I am mentioning these little details so no one will be misled as to the accessibility of 17 Palms oasis. It is not a place to be visited in a shiny new car and fiesta togs.

But Arroyo Salado is not always as difficult to traverse as we found it on this trip. Rain seldom comes to this desert region between January and September—and a few weeks from now the arroyo will be easily passable. It is never a boulevard, you understand, but with careful driving the oasis can be reached without hazard to car or person.

It was late in the afternoon when Arles and I reached the bridge on 99. So we decided to call it a day and save the Palm Wash trip for a future issue of Desert Magazine.



*Birdseye view of the Peralta-mapped mountain from high across Needle canyon to the east. The arrow locates Spanish miner's signs at the top, the dotted line an ancient trail to the summit. In the inset is one of the Saguaros probably topped as a trail marker. Arrow indicates the location of one of the key markers found in later years.*

## Curse of the Thunder Gods

By BARRY STORM

**P**EDRO Peralta, discoverer of rich gold ore in the Superstition mountains of Arizona in 1846, was killed by Apache arrows when his greed for wealth led him to ignore the curse which the Indian thunder gods imposed on all who invaded their sacred domain.

Ramon and Manuel Peralta, who accompanied their brother on the discovery trip, escaped his fate by returning to Mexico after they had acquired a fortune in gold. They preferred ranching to the hazards of mining gold in a land where Apaches were constantly on the warpath.

They learned of Pedro's death through underground channels

Last month Barry Storm told of the discovery of gold in the Superstition mountains—and of the fate of Pedro Peralta when he ignored the curse of the Apache thunder gods and sought to take out the gold he had discovered. When the Indians massacred Peralta and his miners, they sent their women to conceal the mine workings so they would never again be found by the white men. But the Indian women left one shallow pit undisturbed—and of the four men who later rediscovered it, three of them met tragic fates—again the curse of the thunder gods.

of rumor—and were thankful for the good fortune that had preserved their own lives.

Manuel married the daughter of a nearby rancher, Fernando Gonzales, and now had two children. Ramon remained single and footloose and to vary the staid life of a gentleman rancher he often rode to nearby Cananea, a small and very wild mining camp, where he periodically drowned his boredom in a mad whirl of wine and song. There, too, in the cantina he found a sort of second-hand thrill in the convivial company of adventurers who had come from all over the world.

To Ramon this latter was no small attraction for in his secret



heart he often wished that he possessed like them the reckless hardiness to engage in dangerous enterprises. And so he struck up a friendship with two of these adventurers, Jacobs, a German, and Ludi, a Hollander, who were together working a nearby mine. And before long the two had become Ramon's inseparable companions, for they had many tales to relate of a wide world over which they had roamed. But Ramon in return could only tell them of the bonanzas far to the north!

At his golden stories the two adventurers continually scoffed in a good natured way. Bonanzas in that desolate wilderness? Well, perhaps. But if so, why was not Ramon up there adding to his wealth?

So matters stood upon a day in 1860 when Ramon and Manuel received word of the death of their father, Miguel. And one of them, the sorrowful missive stated, would now have to return home to take care of the estate—the old silver mines and the business properties in Chihuahua City and Monterrey where the elder Peralta had invested the gold that Pedro had brought him years before. The two brothers decided between them that Ramon should make the trip since he was both free and willing.

It happened then quite casually that Ramon set out in June upon the eastward-bound journey that took him for the last time to Cananea. And there in the little village he paused, before travelling on across the mountains, to bid his miner friends a last goodbye.

Together the three went to the cantina and drank a toast to the success of all. And then a thought occurred to one of the adventurers. What now of the fabulous mines of which Ramon

had so often boasted? How was he to keep his oft-repeated promise to prove that they really existed?

Indeed, Ramon stated, the matter was really simple. And from his luggage he produced the map which Pedro had given him. It would, he said, show them exactly upon which one of the hills in the Superstitions the mines were located, should they desire to go there. At any rate the map was worthless to him since another government now held the land and he, a Mexican citizen, could never claim the bonanzas which Pedro had found. And anyway he had no need of the wealth which his friends might some day find useful. If so, they were very welcome to the treasure which Ramon would never see.

He gave the two adventurers detailed directions for reaching the proper region from the south, the direction in which he had left the mountains himself. Ramon told them that from the desert they would have to go up the first deep canyon from the western end of the range, climb northward over the backbone of the range itself until they came within sight of a huge, sombrero-shaped peak dead ahead, travel downward past the base of the peak into a canyon (East Boulder) running northward until at last they found on the east side the entrance to a tributary canyon which was very deep, pot-holed and densely wooded with scrub oak. Then they were to turn about and go back southward up this tributary (Needle) canyon until they reached a point where the outlines of the hat-shaped peak to the south and the black-topped mountain to the west both matched from the same place the outlines upon the map. Near this spot they would find a marker upon the end of a rocky ridge. And the marker would be pointing to nearby mines!



*Ludi and Jacobs, Ramon had said, would have to travel downward past the base of the huge sombrero-shaped peak which was the landmark to Pedro Peralta's nearby mines.*

Jacobs and Ludi, it must be acknowledged, accepted both Ramon's instructions and his map with a grain of salt. And yet, as they admitted then, they might possibly look into such an intriguing matter someday, if only for curiosity's sake.

Eleven years passed in which the map was all but forgotten. But finally the adventurers' own mines played out, bringing with the necessity of seeking new fields memory of Ramon's story. Probably there was no truth in it, reasoned Jacobs and Ludi. Yet what could they lose by finding out? And didn't the wealth which Ramon possessed lend considerable weight to such fascinating possibilities?

And so at last in the spring of 1871 the two adventurers, more from curiosity than valid reason, trekked northward from Mexico and into the Superstitions. Following the directions which one of them had jotted down on the map they reached Pedro's key marker in Needle canyon to find, amazingly, that the map did indeed match the sombrero-shaped peak to the south and the black-topped mountain to the west. No doubt, too, they discovered in the region enough evidence of Pedro's presence to excite their enthusiasm. They went doggedly from site to site of the now hidden mines and hunted over the nearby hills until finally they stumbled upon the shallow bonanza which the Apache women had left uncovered twenty-three years before—the glittering, golden rock which the Indians had thought would never again be found!

Ramon had been right after all. And small wonder he had been a rich man! For here was fabulous ore of such dazzling wealth as to stagger the imagination; ore such as even they had never before seen in the richest of Mexican mining camps—beautiful rose quartz that was almost a third shining, yellow metal!

But others, ahead of them, had also found this rich deposit. For some weeks now two other men who had outfitted in Florence, a frontier trading post and stage station thirty-odd miles away from the wild, unmapped Superstitions, had been prospecting at the western edge of the mountains near what was to become the boom mining camp of Goldfield. And both of these two, Jacob Walz, "The Dutchman," and his partner, Jacob Wiser, were already well known in even that wild west as thorough-going scoundrels, capable of practically anything.

Just where the two unnaturalized German immigrants first met is not definitely known. Walz for a time had worked in the early diggings of the Vulture mine near Wickenburg before he was finally caught high grading—stealing rich pieces of ore—and was fired. After that he seems to have drifted south to the Mexican border where he ran into Wiser, an itinerant carpenter whom no one would any longer trust with a job. And before prospecting farther back in the Superstitions for the possible source of such gold, they had returned to Florence in the spring of 1871, seeking someone who could build two portable dry washers with which to work out the placer. They were directed to a local cabinet maker, a German now known only as Frank, who made the machines. Later Frank recalled that while waiting on the dry washers the Dutchman had offered him a job and had speculated on the possibility of finding Spanish mines which Indians were supposed to have hidden. But Frank refused the job because he knew nothing about mining. Perhaps, too, he felt that it was safer in town, for the Apaches, still hostile, would be doubly so toward any white man who invaded the sacred domain of their thunder gods.

The Dutchman and Wiser had worked out their placer gold and begun prospecting the Superstitions at the same time that Jacobs and Ludi found their shallow bonanza. And Walz and his partner, working eastward, came at last upon traces of more placer gold in Needle canyon where they pitched camp near the northwestern corner of Bluff Springs mountain, and started to cook an early supper. And then the faint, far-away sound of metallic pounding drifted down canyon to their astonished ears, unmistakably that of steel upon rock. The hammering of miners!

Walz and Wiser turned to each other with eyes suddenly glittering. And in that instant each one of them knew that the other was thinking exactly the same thing. The legendary mines! Spanish gold hidden by Indians!

Both were dead shots, armed with the best guns of their day, and the element of surprise was in their favor. So Wiser took his .45-70 Springfield musket and Walz his .45-90 Sharpes. And then toward the sounds of the pounding from up canyon they crept, on beyond the black-topped mountain which Pedro had mapped, and toward Weaver's Needle. As the pounding grew louder, they spied Jacobs and Ludi working in a shallow pit high upon an eastern hillside. Working a mine!

This opportunity for fortune neither Walz nor Wiser could resist. From ambush, each picking a man, they levelled their rifles. Then the crashing thunder of gunfire shattered the mountain silence—echoed and re-echoed in fading crescendo . . .

Next morning the Dutchman and Wiser were on their way early to dispose of the bodies of their victims and look over the mine that fate had placed in their hands. They went up Needle canyon with mounting excitement, climbed the steep arroyo to the mine, and then halted in amazement. For the bodies of the two they had shot apparently had vanished into thin air!

But they had disappeared only from the murderous Germans.

Jacobs and Ludi, both mortally wounded, had struggled away unseen in the night, making for the low pass at the head of Needle canyon that would let them out of the mountains on the south. Ludi died enroute and his remains later were found in the very shadow of Weaver's Needle. Jacobs, stumbling on alone, finally reached Andy Starr's cabin on the desert beyond. And there he collapsed in Starr's arms, babbling wildly about Spanish-mapped mines and hidden ambushers. And then he, too . . . died!

Meanwhile, back in the mountains, Walz and Wiser were examining the mine in a veritable frenzy of excitement. For fantastic ore was there to conjure forth roseate dreams of unlimited wealth—a reddish quartz vein that was almost a third gold! And it was theirs, every yellow-studded bit of it! As they worked, the thought came to the Dutchman—why not have this gold all for himself? And when the opportunity came, another shot reverberated through the peaks and ridges of the Superstitions.

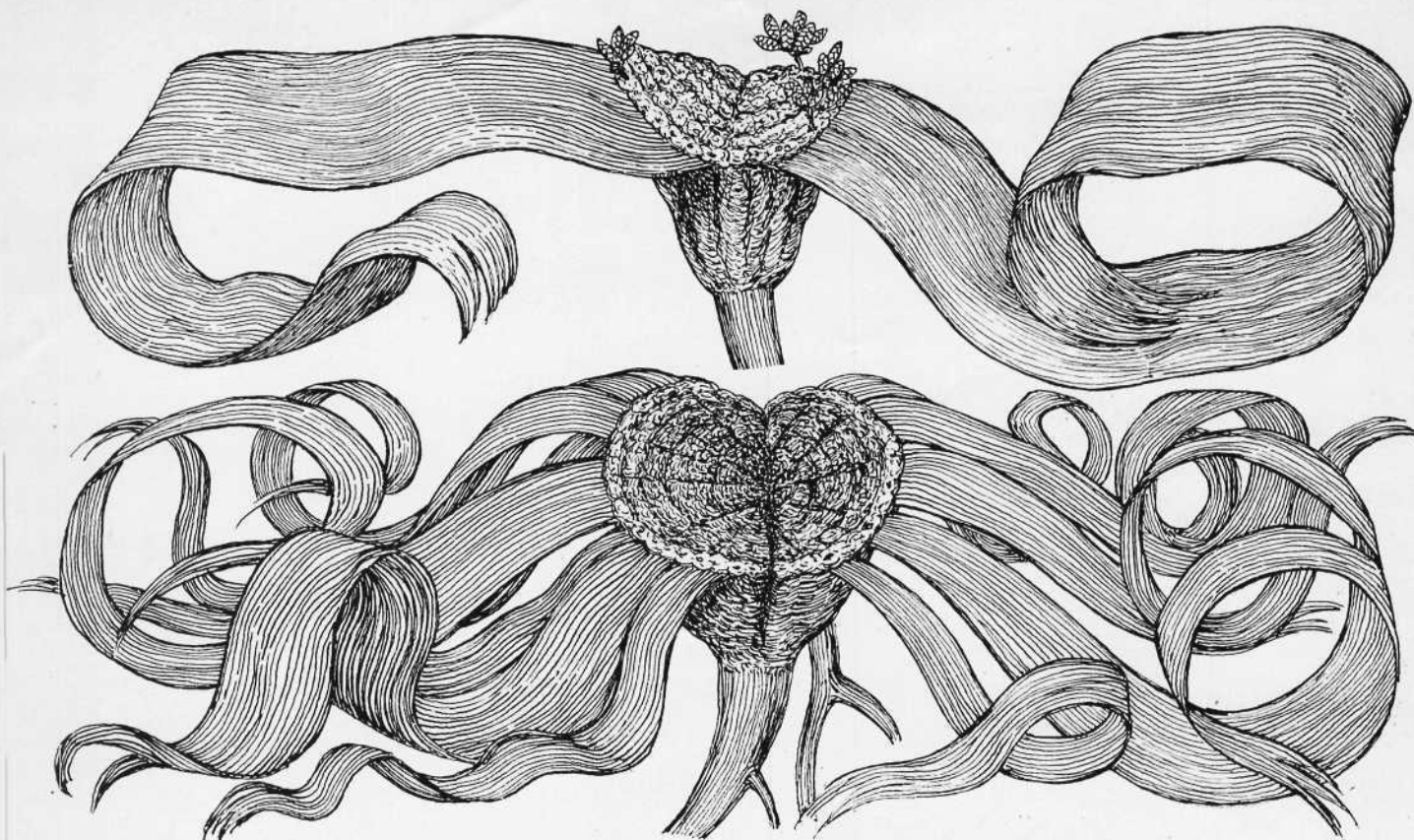
Deaf to Wiser's stricken pleas, Walz left him to die in the mine. Then he returned to camp, methodically gathered up all his partner's possessions—his dutch oven, fry pans, little coffee mill, the bag of assorted nails that he carried for occasional carpentry work—and hid them all under a nearby boulder in Needle canyon, thus concealing forever, he thought, the evidence of his deed.

In the meantime Wiser gathered his ebbing strength and crawled away. Friendly Pima Indians finally found him stumbling in delirium on the desert and carried him to Colonel Walker's ranch. In Walker's home he hovered for days between life and death, telling his incredible story of murder, bonanza gold and greedy treachery, a little at a time.

By way of proof he made Jack Walker a crude map showing the way back to a mine somewhere northeast of Weaver's Needle. But the Walkers, already rich from the Veckol mine which Pima Indians had shown them, and knowing full well the unsavory reputation of the two Germans, were either not enough impressed with the chance for wealth in the Superstitions to risk Apache death or were too wise to be taken in by such obvious attempts to obtain revenge upon the Dutchman. Wiser died, another victim of the thunder god's curse.

*In the next issue of Desert Magazine will appear Barry Storm's story of Walz—and of the Lost Dutchman mine.*





*Welwitschia mirabilis*. Redrawn by the author from Don Ferdinand da Costa Leal's figure prepared for Dr. Welwitsch. Upper figure shows a young plant 15 or 20 years old. Below is an old veteran of many seasons with typically wind-shredded leaves which simply finish without ornament or fixings as frayed tags of leaf-tissue. Figure copied from Leal's figure as appearing in Curtis' *Botanical Magazine*, Kew, 1863.

## The Natives Call it 'Tumbo'

The accompanying story of a plant with an unpronounceable name is the first in a series of short sketches to be written by Jerry Laudermilk about oddities found in the deserts around the world. Other subjects will appear in *Desert Magazine* from time to time.

By JERRY LAUDERMILK

**T**HIS is the story of the *Welwitschia* plant, a grotesque marvel from the desert in a far-off land where rain falls but once in a decade. Although first cousin to *Ephedra*, the familiar "Desert tea" of our own Southwest, this plant has been so molded by its environment that only an expert can detect a family resemblance. Both *Welwitschia* and *Ephedra* belong to the Gnetales, a highly specialized vegetable alliance of but 50 species with certain traits that seem to fit them in somewhere between the Gymnosperms, pines, firs, etc., and the Angiosperms or flowering plants.

This vegetable anomaly has been content with so many strictly utilitarian features that it is hard to think of it as a finished product. It functions like a photosynthetic machine with the shape of a

monstrous, undeveloped seedling. Many plants such as the Ginkgo tree, the star-pines and magnolias seem to be relics from past ages. *Welwitschia* is more like a forecast of things to come, a sample to show how certain higher plants may look, when, as modified survivors from our own age, they struggle for the last traces of water on a dehydrated earth. The idea is not far-fetched. A condition something like it may already exist on the planet Mars where a meager water supply from melting polar caps wars against the vast red desert for the vegetation of that desiccated globe. But before I go deeper into the personal eccentricities and probabilities evoked by *Welwitschia* let's have a glance at the land that forms the scene for this plant's weird existence.

Beginning at the 15th parallel South

and extending down the coast of southwest Africa for nearly 700 miles is a narrow strip of desert and semi-desert that includes some of the driest land on earth. Although washed by the waves of the Atlantic and frequently subject to heavy fogs at night that leave the vegetation wet with dew, the annual average rainfall is nowhere more than 10 inches and in some places less than three-quarters of an inch in 10 years. For decades this driest of dry lands is seldom wet to a depth of more than three inches. Adding to this general drought are strong winds from the interior which draw out moisture from the ground and rattle the sand like dry sleet over the miserly soil. With all this excessive harshness of atmospheric forces the temperature is generally mild, about 60 degrees Fahrenheit for the year even

in the Namib, most arid part of this land of desolation.

The plant population of Welwitschia-land is small in individuals but large in variety. It grows mainly along the many dry washes and shallow valleys where clumps of strange *Euphorbias* share the few patches of sheltered ground with other curious plants that specialize in either bloated and fleshy leaves or gaunt and thorny stems. This weird growth is a feature of the landscape as distinctive as the cacti of our own desert and all local plant-life is stamped with the stark personality of the background. But most outlandish of many strange shapes are certain rumpled heaps of dusty green which loom in bold contrast against the glittering bleakness of the waste. These tangled heaps are the wind-shredded strands of enormous leaves which from a little distance seem to sprout directly from the ground. Closer view shows them to be made up of strands of foliage which spring like flat ribbons from opposite edges of brown, cracked and bowl-shaped objects sometimes more than 60 inches across. These tops of Welwitschia "stocks" may either be half buried in the ground or rise a foot or more above it like enormous turnips in a wind-scoured garden.

For unknown centuries this strange plant has been familiar to the wandering Bushmen who call it by the native name "tumbo." The Dutch and Portuguese colonists must also have known it since it is rather common in some of the districts first to be settled. But for some reason Welwitschia escaped scientific notice until 1860

when the explorer, Dr. Frederick Welwitsch described specimens he saw growing near Mossamedes in Southern Angola. Naturally, this curious plant astonished the botanical world and for years, since all the circumstances associated with it were unusual, there grew up some mistaken notions that have persisted for a long time. One of these is the *supposed* fact that the leaves are simply the two enormously overgrown cotyledons (seed-leaves) of the young sprout. This is not quite correct.

Dr. H. H. W. Pearson of Cambridge, a leading authority, shows that the cotyledons soon fall away after the first pair of permanent leaves have a good start. But these are all the plant ever puts out, since, unlike any other type of leaf so far known, they continue to grow from their bases embedded in a grove around the crown somewhat as a fingernail continues to grow from its matrix. The leaves are frequently more than six feet long and sprawl over the ground at the mercy of the wind. The plants are of different sexes and the only attempt at ornament ever displayed are the red cones of the female flowers which appear to be fertilized by an insect that lives among the foliage.

Speculation about Welwitschia's ancestry is practically pure guesswork since fossils of the Gnetales are of doubtful identity. But the class must be ancient and many ages would have been required to produce the features found today. In any case, Welwitschia shows what a resourceful genus can do when Mother Nature says to it "adapt yourself or die."

## COLORADO LEADS BIG GAME CENSUS OF UNITED STATES

Almost one-fourth of all big game animals in the United States are to be found in the seven Rocky Mountain states including Arizona.

Total big-game population of the area, based on a 1941 survey, was 1,556,559.

Leading state was Colorado, with 440,160 animals, followed by Idaho with 242,958. Arizona's total was 113,720.

Colorado led all states in the number of mule deer, 398,375, and Montana was first in the number of mountain goat, 5,540; grizzly bear, 650, and bison, 1,242. Idaho had the largest number of big-horn sheep, 3,047; and Wyoming the greatest number of moose, 3,650, and elk, 65,125.

Other big game figures by states:

White-tailed deer: Arizona, 30,310; Idaho, 28,090; Montana, 39,705; New Mexico, 16,600; Wyoming, 3,000.

Elk: Colorado, 26,360; Arizona, 5,125; Idaho, 37,893; Montana, 27,123; New Mexico, 3,703; Utah, 5,252.

Prong-horned antelope: Arizona, 8,430; New Mexico, 30,335.

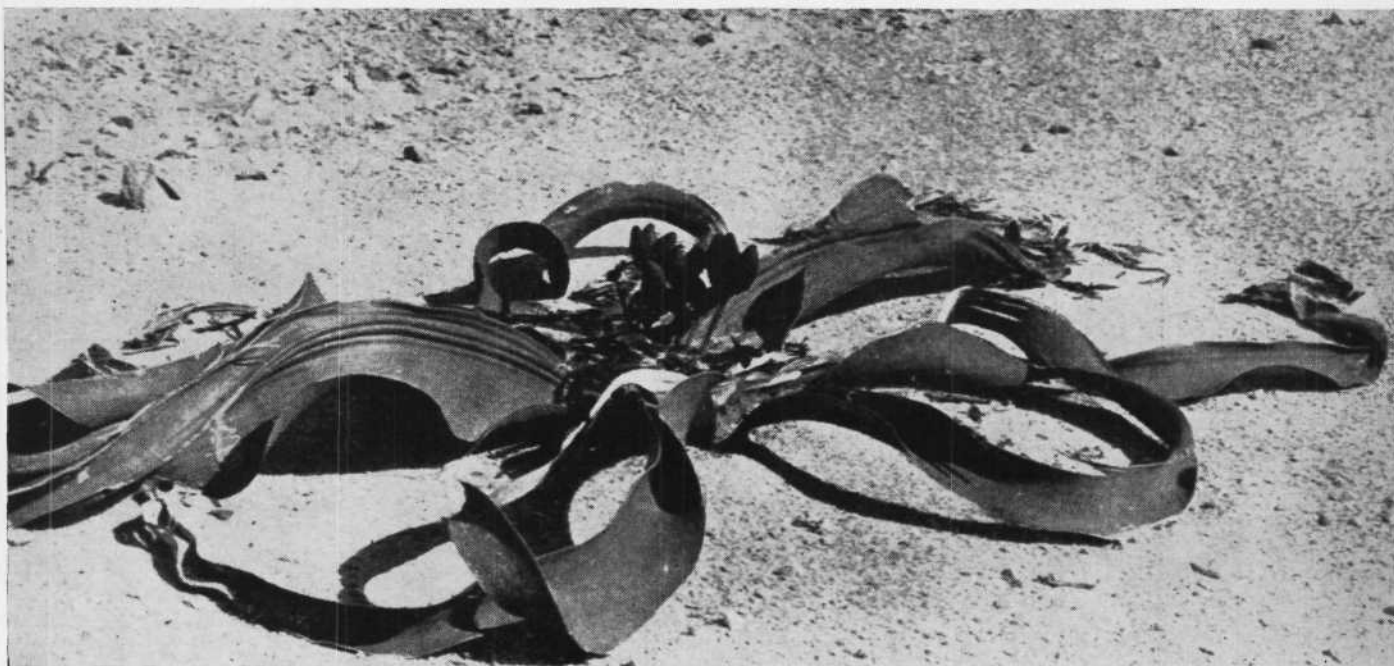
Big-horn sheep: Arizona, 50; New Mexico, 6.

Desert big-horn: Arizona, 1,470; New Mexico, 285.

Peccary or javelina: Arizona, 15,620; New Mexico, 400.

Black Bear: Arizona, 16,628; New Mexico 3,527; Utah, 483.

Bison: Arizona, 200; New Mexico, 84; Utah, 21.



*Female of the Welwitschia plant in its natural habitat, the Namib desert of Southwest Africa. As simple heaps of green leaf-tissue the foliage sprawls as an unkempt jumble on the windswept sand. When stretched out flat the leaves of a plant like this may measure 12 feet from tip to tip. Photo by Wm. Austin Cannon. Copied by Helen Lauder milk from Carnegie Institute of Washington, D. C., Report No. 351, 1924.*



### WE'D LIKE TO KNOW

Since county and state regulations in much of the desert area where the Desert Lily is native forbid the removal of bulbs, Desert Magazine will be interested in receiving letters from readers who have been successful in propagating the Lily from seed. We would like to pass along to other readers the experience of those who have been successful.

## Untamed Lily

By CARROLL ABBOTT

**D**ESERT Lily, *Hesperocallis undulata*, is the wild mustang of the plant kingdom—spirited, persistent, and untamed. It frequents the more unreachable parts of the desert, and search as you will, you will never see a vast garden of Desert Lilies. They are much too wary for that. Wisely they scatter over the desert in gallant clumps and remain on the winning side of the battle against domestication.

No other member of the Lily tribe with half its beauty has remained as foreign to the flower garden and catalogs as *Hesperocallis*. Its slow propagation foils the attempts of the nurserymen. A nurseryman must have an immense stock of a plant before he can offer it to his customers. The Desert Lily is spread so widely and thinly; its bulbs are so far down, and its reproduction so slow as to discourage commercialization. But few desert lovers are sorry about that. To them, the only proper atmosphere for the Desert Lily is the equally wild and untamed landscape of the desert.

Recognized for countless years by the Indians for the pungent garlic flavor that it imparts to their cookery, the Desert Lily was welcomed by the early Spanish explorers as a spicy supplement to their tasteless, meager rations. The Spaniards promptly dubbed it *ajo*, garlic, and thereby set the stage for the naming of the Ajo mountains in southern Arizona which boast of many scattered clumps of the Desert Lily.

The name, *Hesperocallis undulata*, gives a vivid description of the plant. "*Hesperocallis*" was tailor-made to fit by the American botanist, Asa Gray. It is a welding of Greek words: "*hesperos*" for western, and "*kallos*" for beauty. "*Undulata*" is Latin for wavy, referring to the leaves. Putting them together, you may decipher, "a western beauty with wavy leaves." An undeniably accurate picture.

Spread in discreet clumps over the Mojave and Colorado deserts and parts of western Arizona, the Desert Lily may be found in splendor around Twentynine Palms, Yuma, and Fort Mojave. March and April are the usual months favored with its flowers, but some localities are blessed with a few blossoms as late as May.

Botanically, the Desert Lily is relegated to a niche all its own in the Lily tribe. But invariably when a newcomer chances across its spike of white beauty, he indignantly demands, "Why isn't it a Lily? It's as beautiful as any Easter Lily I've ever seen." Granted, but the answer lies not in the flower but about 10 inches to two feet below the ground surface. It's the rarely seen bulb that spells the difference between the Desert Lily and its Lily cousins.

A true lily bulb is a mass of fragile scales that threaten to snap off unless they are handled with extra care. But the bulb of *Hesperocallis* is firm and solid, covered snugly with a tight fitting coat. The searing desert sands would roast the watery lily scales.



An inch or two of rain in the late fall or early winter knocks at the desert floor to stir up the leaf action on the *Hesperocallis*. The bulb, weeks in advance, is busy preparing a rosette of crinkled, folded leaves. The foliage makes the Desert Lily a beautiful plant in or out of flower. Spreading widely, often crawling on the sand, the first leaves sometimes grow to 18 inches. They are pale blue-green, bordered with a narrow, crinkled line of white. All is set for the rain which will determine the height of the stem and the number of flower bells.

A 12-inch stalk spiked with a half dozen flowers is the reward for one or two inches of rain. Three or four inches of

water summon a stem up to three feet crowded with as many as 40 blossoms. As the lower flowers unfold, the flower spike shoots skyward, lining the stem with more buds. The life duration of each flower is two or three days, after which it withers away to a curious transparent, papery texture, leaving a swelling seed pod.

The Desert Lily is never in a hurry. If no rains wake it from its dormant sleep, it just rests on into a more fortunate season. It will wait patiently for several years until adequate moisture awakens its latent beauty.

How long it requires to grow a flowering bulb from the black Desert Lily seeds is locked up with other desert secrets. Most botanists like to scribble under propagation: "probably from seeds." The *Hesperocallis* bulb is too tough and life on the desert is too rugged to risk taking vital flower energy from the mother bulb and venturing it on a bulblet.

The Desert Lily faces no danger of extinction. It thrives in discouraging places and is often too bashful in blooming.

But even a mustang can be corralled and there are a few instances in which desert people have been able to bring Desert Lily to their gardens. Reports say that patience, care, knowledge, and a good dose of prospector's luck, are necessary requirements to propagate or transplant *Hesperocallis*. But with all its enchanting beauty, the Desert Lily hasn't appeared on the flower menu of garden catalogs, for though nurserymen are filled with pioneer spirit, most of them shy away from the task of breaking the untamed lily to garden harness.

## STAMPEDE FOR JACKRABBIT HOMESTEADS DELUGES LOS ANGELES LAND OFFICE

A 1945 version of the land rushes of former years was staged in Southern California during February when applicants for "Jackrabbit Homesteads" deluged the United States land office in Los Angeles with 1500 applications for 5-acre leases on public lands in Twentynine Palms, Victorville, Morongo and Coachella valleys.

Registrar Paul B. Witmer and members of the Land Office staff in the Postoffice building in Los Angeles had long waiting lines of people who came either to get information or make applications.

In a majority of cases the applicants filed sight-unseen, making their selections from maps in the government files.

The land office personnel tries to make it clear to each applicant that the lands are not designed as a source of livelihood, and in most instances are several miles from the nearest water and power-lines.

The procedure is for the applicant to fill out a blank, the limit being five acres for any American citizen except that both husband and wife are limited to one filing. The application is accompanied by a \$5.00 filing fee. Final approval of the application is given in Washington and requires from two to three months. When approved, the applicant must pay the first year's lease at \$1.00 an acre. Thereafter for the five-year term of the lease the cost is the same—\$5.00 a year for five acres.

The Izac law under which public lands are opened in this manner permits the sale of the 5-acre tracts. However, the regulations set up by the department of interior have so far restricted all applicants to leases. The department is now considering plans for selling the land outright to lessees after cabins are built or other improvements are made on the property. There is no requirement as to residence on the land, however, such as was necessary under the old homestead laws.

Witmer stated that additional lands will be made available as required to meet the demands of the public. "There are 8,000,000 acres of public land in Southern California," the registrar stated, "and most of it is on the desert. Those desiring to make applications should understand that this is not farm land. It is mostly sand and rocks—and the government makes no promises as to water or other improvements."

## DESERT QUIZ

One way to improve your knowledge of the American desert is to take the Quiz test in Desert Magazine each month. You may not score very high the first time—the average person knows less than 10 correct answers—but your percentage will increase as you read Desert Magazine each month. Fifteen correct answers is a high rating, and only a super-student of the Desert will reach 18. The answers are on page 30.

- 1—You are bogged down in the sand with the wheels spinning. The first common sense remedy to try is—  
Race the motor..... Let some air out of the tires.....  
Start shoveling sand..... Jack up the car.....
- 2—From the San Francisco peaks of Arizona, to see Grand Canyon you would look—East.....South.....  
West..... North.....
- 3—The Kiva serves the Indians as—A weapon of war..... A form of bread..... A storage place for grain..... A lodge room for men.....
- 4—Indian symbols incised in the rocks are properly called — Lithographs..... Hieroglyphs..... Pictographs..... Petroglyphs.....
- 5—Boulder dam was built in—Black canyon.....Boulder canyon..... Marble canyon..... Grand canyon.....
- 6—Sidewinders more often are found in—Prairie dog holes.....Caves.....River bottoms.....Sand dunes.....
- 7—Indians used Ephedra for making—Dye..... Poison arrows..... Tea..... Intoxicants.....
- 8—Casa Grande ruins in southern Arizona have been reserved as a—National park..... National monument..... State park..... Indian reservation.....
- 9—To reach Taos, New Mexico, from Santa Fe you would travel in the general direction of—North..... South..... East..... West.....
- 10—The book *Campfires on Desert and Lava* was written by—Sykes.....Lockwood.....Chase..... Hornaday.....
- 11—Obsidian is properly classified as — Sedimentary rock..... Metamorphic rock..... Igneous rock..... Conglomerate.....
- 12—First known explorer to navigate the Colorado river through Grand canyon was—Kolb..... Powell..... Kit Carson..... Bill Williams.....
- 13—The Comstock lode was located in — Nevada..... California..... Arizona.....
- 14—Nolina is the name of a desert—Bird..... Reptile..... Shrub..... Squirrel.....
- 15—To visit the Cedar Breaks national monument you would go to—Arizona..... Colorado..... Wyoming..... Utah.....
- 16—Bingham canyon in Utah is famous for its—Gold mines..... Waterfalls..... Copper Pit..... Scenic caves.....
- 17—Coronado came to New Mexican territory primarily seeking—To establish missions..... In quest of the Seven Cities of Cibola..... To annex the territory to Spain..... To find the headwaters of the Colorado river.....
- 18—Bill Williams tributary flows into the Colorado river nearest—Boulder dam..... Needles, California..... Parker, Arizona..... Yuma, Arizona.....
- 19—The state flower of Arizona is the—Cliff rose..... Columbine..... Wild verbena..... Saguaro cactus.....
- 20—Most of the dates grown in the United States come from—Coachella valley..... Yuma valley..... Salt River valley..... Chuckawalla valley.....



On far-off Ghost mountain where the Marshal South family is healthy and happy in primitive isolation there is much work to do—but Marshal and Tanya and their three children also find time to play. And since there are neither theaters, nor motor roads nor neighbors on Ghost mountain—they seek their pleasure in exploring the great mysterious desert that lies about them. Here is the story of a field day at Yaquitepec.

# Desert Refuge

By MARSHAL SOUTH

WELL the wild geese have gone north again, winging their course in dawnlight and starlight and through storm above the low roof of Yaquitepec. The glorious Spirit of Spring reaches out in new life and promise across the desert. In the earth and in the air the wave of energy stirs in root and in leaf and in darting insect. And this morning, as I went out in the early dawn to carry a can of ashes to the dump, the first hummingbird of the season whirled about my head, darting by to light, a tiny jewel of feathered green, upon the summit of a near-by juniper. Yes the spring is here.

And we are ready enough to greet it. The winter on Ghost Mountain was cold. Not as grimly cold as previous signs had led us to expect. But quite cold enough. The youngsters, who are always wishing for snow, were gratified. And had about all they wanted of snow-and-honey desserts. For a long while a big snowman, of which Rider was the chief designer, kept guard by the yuccas in front of the house, his black eyes, formed of juniper charcoal, peering fixedly through the wan sunlight and through the ghostly radiance of the moon. But the snowman is gone. And though the children swept up his eyes and buttons and personal adornments dolefully their elders shed no tear at his passing. Snow, especially desert snow, is beautiful. But there is the bite of iron hidden beneath its ermine. The warm winds of spring are more gracious.

Yet we have affection enough for winter. For Ghost Mountain winters have a generous sprinkling of joy and are always fragrant with happy memories when they are laid away, one by one, in the treasure chest of the years. Memories of cheerful roaring fires. Of the strong harping of the gales, driving across the roof in the starlight. Of stories told around the warm mound of snapping embers. Of memory pictures woven by the fire glow upon bare, healthy, happy young bodies against the tapestry of the dark. Of the cracking of piñon nuts. Of the rusty scurrings of inquisitive mice.

And there are always the memories of sunny interludes, too. For winter never endures too long in one stretch. Always it is broken in irregular fragments, between which the gods of storm go on vacations—sunning themselves in indolence amid the drowsy peace of desert canyons. Such respites are not long. But while they last they are perfect. And, upon one pretext or another, we generally manage to take advantage of them.

It was during one of these sunny recesses that we discovered "The Cave of Memories."

The name sounds romantic. But Rudyard, who broods over forgotten cities and spends his time, at odd moments, scribbling weird bits in "The Book of Tilpan," insists that that is its name. So The Cave of Memories it has become.

Of course we didn't set out to find the cave. Not having the least idea that it was there. What we really went out for was to scout for more dead juniper trees to help with the fuel supply. This break of wonderful weather, we said, was a golden opportunity which we really could not afford to miss. So we

pushed daily duties aside and, having made solemn proclamation (after the manner of Governors and other exalted personages) that this was "Go-Search-for-Juniper-Day" and therefore a complete holiday, we packed a lunch and taking the crowbar—to uproot dead stumps with—and the necessary carrying ropes, we set out.

The summit of Ghost Mountain is a savage wilderness of rock. Upthrust in a shattered mass from the parent crust of earth by mighty forces, the riven granite has been ground and weathered by the slow march of thousands of desert years. It is hard going between these monstrous boulders, fortified by their footing of jumbled stones and massed bayonets of mescal thorns and cholla. Each step must be taken with judgment, for a false one may lead to serious disaster. Under such conditions any burden soon makes itself felt. It was not long, therefore, on our excursion, before we found a pretext to abandon the heavy iron bar. It would be better to do our scouting first, we said, and come back for it when we had located the dead trees.

So, having thus thrown dust in the eyes of our accusing consciences, we cached the bar at the foot of a big wind sculptured boulder, beneath the shadow of which lay the blackened stones of an ancient roasting hearth, and went merrily on our way.

We felt better without the bar. Because we knew, in our guilty hearts, that we hadn't really come out looking for juniper, anyway. We had really come out for a holiday. And now that we were freed of the heaviness of that bit of iron, dragging at our spirits with the dead weight of a New England conscience, the day seemed brighter everywhere.

You don't choose definite directions when you are on an exploring trip such as ours. You just keep moving, leaving the direction to chance—which is always sure to lead you into something worthwhile. So we just tramped and scrambled along. Stopping often to peer into mysterious hollows under leaning boulders; to examine weird bits of cactus growth, or just to look out over the vast immensity of the distant desert that rolled away from beneath our mountain in all the fantastic shades and mysterious allure of an unknown land never before trodden by the foot of man. That it had been trodden we knew only too well. But it lay so weird and silent and distance-shrouded that even the knowledge could not destroy the illusion. The desert, of all the different regions of the earth, has the strongest personality. Man and his works cannot break it. Always, in the background, lies the Spirit of the land, watching, brooding. Waiting the day when she can sweep clear the stage of threadlike trails and human gopherings. Man always overestimates himself. The old gods always have the last word.

We came to a rim, presently, among the rocks, and found ourselves looking downward into a rugged canyon that we had never seen before. It was drier here, seemingly, and the heaped boulders looked thirstier. They were blackened and reddened under the wheeling suns of unguessed centuries. The scatter of junipers through which we had been passing seemed here to pause, as though sight of the thirsty depths had checked their ranks. One or two—as though adventurous scouts—had gone down. We could see their dull green shapes clinging here and there to the scorching rock tumble below. But the main body had halted, appalled. A dry wind came out of the depths, and the slopes that fell away from our feet were a thirsty yellow-white sheen of the vicious *bigelovii*—the cruellest cactus of the desert. Truly it seemed we had stumbled upon the Canyon of Desolation.

But youth takes small stock in appearances, being swayed only by the luring spell of adventure. Rider and Rudyard were already skipping nimbly down the rocks and we had little choice but to follow them. I turned over the water canteen to Tanya and picked up Victoria. Victoria can hold her own with the boys under normal conditions. But her little legs are as yet too short for scrambling jumps among boulders the size of young houses. We started downwards.

We went down the canyon a long way. And it was quite

warm in the lower depths, for the sun, slanting directly into the gash, struck savage reflections from the thirsty rocks. The several juniper trees which we had seen from the top and which had looked so diminutive and toylike proved to be gnarled and husky specimens, undoubtedly centuries old. Now that we saw closer where they grew the wonder was not that there were so few of them. The miracle was that there were any at all. These must indeed have been daring spirits, seeking adversity for its own sake.

Our two wild Indian guides, whose lithe naked bodies had been flitting like shadows down the canyon ahead of us, paused finally and exhibited signs of excitement. From their beckonings and gesticulations and faint, distance hushed shouts, we gathered that they had reached the end of something. For which our aching muscles were not sorry. We saw them sitting down presently, upon the top of a huge flat rock, talking together and pointing down the gorge, which, beyond them fell away and away into shimmering distance until it merged with the misty blues and violets of the far lowlands.

And we soon found why. For a few minutes later, rounding a great boulder and sliding down a short wind polished rock incline, we found ourselves in a tiny, crater-like basin, rimmed with mighty and terrifying rocks and carpeted with as beautiful a floor of gritty white sand as ever gleamed on the beach of any South Sea island paradise. It was warm here and silent and altogether delightful. We set Victoria on her feet. And with a cry of joy at the feel of the smooth sand she sped off like a twinkling brown sprite to join her brothers.

Only to be halted by wild yells. Hair flying and arms waving, Rudyard came sprinting back towards us. "You all take care!" he panted. "That's the place where it jumps off into nuffink. It's 15,000 feet deep over there. Or—or maybe a bit less!" He was out of breath.

"Whenever there's a heavy enough storm," Rider said speculatively, "there must be a magnificent waterfall here."

"An' there might be a spwing!" Victoria exclaimed, struck with the sudden idea. "Daddy, you should go home at once an' bwing a shovel an' try digging, down there at the bottom."

"Some other day, sweetheart," Tanya said softly. "Anyway we probably can find other places that might be nicer to dig in. Uff! Just to think of going *over* there! How about some lunch?"

So we ate our lunch way back from the rim, in the drowsy shade of a vast rock, the dazzling white shimmer of the oatmeal-coarse sand ringing about our feet. A lone buzzard wheeled far up in the blue arch overhead, and here and there, on the steep scorched slopes that rose up around us, the savage clumps of Bigelow's cholla sparkled a brassy yellow glare of glistening spines.

And it was while we sat resting there, our eyes roving idly over the pressing desolation, that we saw suddenly the huge barrel cactus, the shadowy hollow and the little wall of stones.

"Looks like a cave up there," Rider said, pointing. "See. There by that big cactus, under that overhanging rock."

"And a stone wall!" Rudyard gasped, excitedly. "Quick! Quick!" He fled away, an unfinished piece of bread in his hand, Rider sprinting at his heels.

It was a cave all right. A cave which, when we had clambered up to it, urged on by the frantic goadings of Victoria, who was weeping with disappointment at not being able to get there as swiftly as her brothers, proved to extend back some little distance under the great rock. Like all the other caves of the Ghost Mountain region it was formed through the leaning together of a group of giant rocks. Such caves are usually not very big. But this one was larger than most. And undoubtedly it had been lived in. For, in addition to the low breastwall that had been built up before the entrance, all the cracks and crannies of the cave proper, where the irregular shapes of the rocks came together, had been carefully built up and plugged with fragments of stone. Storms and the march of years had dislodged many of the smaller pieces, so that now the sunlight struck

through chinks and draught holes. But in its prime the little rock dwelling evidently had been quite weathertight and snug.

Yes, undoubtedly, this cave had been lived in. But that had been a long, long while ago. No one was living here now—or was there? Absurd. What a question to ask, with the evidence of utter abandonment so plain on every hand. But there is a solemn hush about such places. A "something" which, as we stood there in the utter silence of the canyon, did not make the queer thought seem so absurd. It was easy enough in that solemn hush to imagine anything. The weight of the past was over us all at once. The boisterous excitement of the children had gone out of them. They were all at once very quiet. As we moved about, peering and exploring cautiously in the dimness, we spoke in whispers.

There wasn't much in the cave. The "old people" were very poor, as regards earthly possessions. A broken olla. A couple of rubbing stones—one of them a very graceful one of the roller type fashioned from grey granite. A few sticks of ocotillo wood and several hunks of age-worn juniper. A thin scattering of charcoal fragments and several smudged areas on walls and roof where ancient cooking fires had left their trace—these, and a deep worn mortar hole in a flat boulder beside the cave entrance, were all the mute testimony which the cave contained.

Not much. Yet, as we stood there, looking out over the vast, wide sunlit sweep of glistening boulders, that swept away in desolation down the far course of the canyon until it opened out into the further vastness of the mysterious lowland desert, we could not shake off the odd feeling with which the cave inspired us. "I fink," said Victoria softly, "that there are ghostesses here." She looked around her expectantly. Victoria is deeply interested in "ghostesses." They hold no terrors for her any more than they do for the other two youngsters.

"Whoever used the grinding hole, used it a long time ago," Tanya reflected, half to herself. "See how that big barrel cactus crowds above it. No one could possibly use the hole now for grinding. That cactus must have grown since."

We all looked at the cactus and were silent. This was a giant. Bisnaga grows very slowly.

Rudyard went back into the cave. "You know," he said, when he came out, "there's a funny heap of dirt and charcoal bits and piled rocks in the back of this cave. Do you s'pose that whoever lived here . . ."

"Maybe," Tanya said, not waiting for him to finish. "Maybe. I shouldn't wonder. It feels like it. And anyway, if they *are* buried there, I don't think we ought to stop here any longer. Anyway there's a feeling here as though someone resents our presence. Let's go. It's their cave. Let's leave it to its dreams and memories."

"The Cave of Memories," Rudyard said solemnly, as we went down the slope. "I shall call it by that name. It is like the things I write about in the Book of Tilpan."

So we went home. Climbing out of that silent canyon we threaded our way back across the summit of Ghost Mountain. And we retrieved the iron bar from where we had cached it. And we reached home just at sunset, when the long shadows of the mountains were thrusting purple fingers into the twilight mystery of the desert.

#### KINDNESS

For those who willingly pursue  
The noble plan of living,  
There is an endless task to do  
In sharing and in giving.  
For God so built this plane of man,  
That he who would be wise,  
Must give of kindness all he can,  
Thus only shall he rise.

*Tanya South*





*This is part of the author's collection of morteros and metates, arranged in front of the false fireplace in his home.*

# We Collect Morteros

By HOWARD KEGLEY

ORDINARILY I don't stop when she cries: "Stop! Back up! I saw something." I slacken my speed maybe 1,000 feet down the road and then we both agree that whatever it was probably isn't worth backing up for. But this time I stopped, quick enough even to have dodged a jaywalker, for somehow I had a feeling that my wife had seen something well worth a second look.

"There it is, sticking out of that cutbank!" she exclaimed, as I stopped the coupe. "I've been telling you all along that some day we'd find one!"

Sure enough, we had. Lying face down, under about three feet of overburden, and sticking out of the cutbank half its width, was as pretty an Indian mortero as you ever laid eyes on.

Twilight was settling down over the desert when we made this delightful discovery as we slithered through a gash in the low hills of southern Riverside county, on a week-end outing the day before gasoline rationing began.

The mortero was about 10 feet above the highway. We pried it out with a campshovel. It weighed perhaps 300 pounds, and when it rolled down the embankment it almost buried itself just off the shoulder of the pavement, where a perennial seepage created a bottomless mire.

How to get it into the turtle-back was a problem. After approaching it from many

**Collecting morteros sometimes calls for a strong back and plenty of patience—but is fun nevertheless—as you will gather from this story written by a man who has made it a hobby for many years.**

angles we finally decided the only thing to do was to build a ramp of stones by stacking them under the rear of the car and sloping them down to the rock. We found a pole, and by prying up first one side of the rock and then the other, and slipping rocks under it, we gradually

wormed it up to the foot of the ramp, from which location, after much difficulty, we succeeded in rolling it into the turtle-back.

What an undertaking. Night was upon us. But we were thrilled. It was the crowning triumph of a quarter of a century in the lives of two mortero collectors. To get the car into a position where we could build the ramp we had to turn it crosswise of the highway and back it to the shoulder of the road. Since both of us were needed to manage the loading task, there was no one to act as flagman for approaching traffic.

My wife remarked as we finished the job and were brushing off some of the travel dust: "Too bad a highway patrolman didn't come along; he could have given us a boost with the rock!"

Yes, and what a boost he could have given us—right into the clink, for turning the car crosswise of the road. I muttered that I much preferred to do such jobs alone, and stepped on the starter. Up the grade we went, and as we dipped over the brow of the hill there, not 100 feet away, at the side of the road, a highway patrolman idled on his motorcycle, chatting with two buck privates. It was indeed our lucky day!

What a mortero it was! The grinding recess was at least 10 inches deep, and on the surface at opposite sides, were indistinct symbols resembling the cross frequently used by Mission Indians in basketry. While collecting morteros in half a dozen southwestern states—generally trading for or buying them from the In-

## To Keep the Records Straight

It is common error to use the word metate as applying to two different types of Indian grinding stones. Correctly, the metate is the shallow type of grinding stone with a mano as the tool for crushing the grain. The metate and mano are still in common use in the Hopi villages of Arizona and in other places today. Mortero is the Spanish word for mortar, and its method of use is the same as in a modern drug store or assay shop. It is a well-worn hole in a rock and the grain is crushed with a pestle.



*Frank J. McCoy of Santa Maria Inn, has an interesting collection of morteros. He uses some of them to decorate a balcony and stairway overlooking a hidden garden back of the Inn.*

dians—we were always remarking that some day we would find one and, sure enough, we did, on the last day we could use gasoline for an outing of considerable length.

We sunk it in the lawn, against the garden fence, and planted a huge tree fern at one side of it. But when I tell you we found one don't conclude that they are easy to find. It was our first find in 25 years of collecting. Still, they can be found, although mostly you get them from Indians who live where morteros were numerous for centuries.

If an Indian has two morteros he will

sell or trade one, but will rarely part with the only one in his possession because they still use these grinding rocks to prepare cornmeal, pound peppers, or powder dried roots or leaves of some medicinal plant.

Extending back for two generations, and reaching from the Mexican line to Pyramid Lake in Nevada we have been collecting Indian morteros and getting a lot of fun out of it. We possess a few more than 50, of many sizes and shapes. Two or three are almost the shape of bathtubs. We are unable to understand how they acquired such shape, for generally morteros are round.

At the outset we sought them as bird-baths for the garden, but after accumulating quite a number we turned to collecting them as a hobby. Visitors at our domicile have often been known to give one another knowing glances, as if to hint that we probably had been dropped headfirst upon some hard object, in our infancy.

"What good are they?" some inquire. "Anything as lifeless as a stone holds no interest for me," some have remarked.

Well, they are inanimate, excepting perhaps in the early morning or late afternoon when a flock of friendly birds comes to take a cool dip, and remains to preen wet feathers and cut up various didos in the yard. Several years ago nature answered this question of animation to our complete satisfaction. One forenoon the back gate was ajar, and who should wander in but Daisy, a fresh-water turtle about the size of a ham sandwich. The name Daisy was attached to her because when first sighted she was creeping out of a border of Shasta daisies. She made a bee-line for a sizable mortero which was filled with fresh water, and into it she went with a great splash.

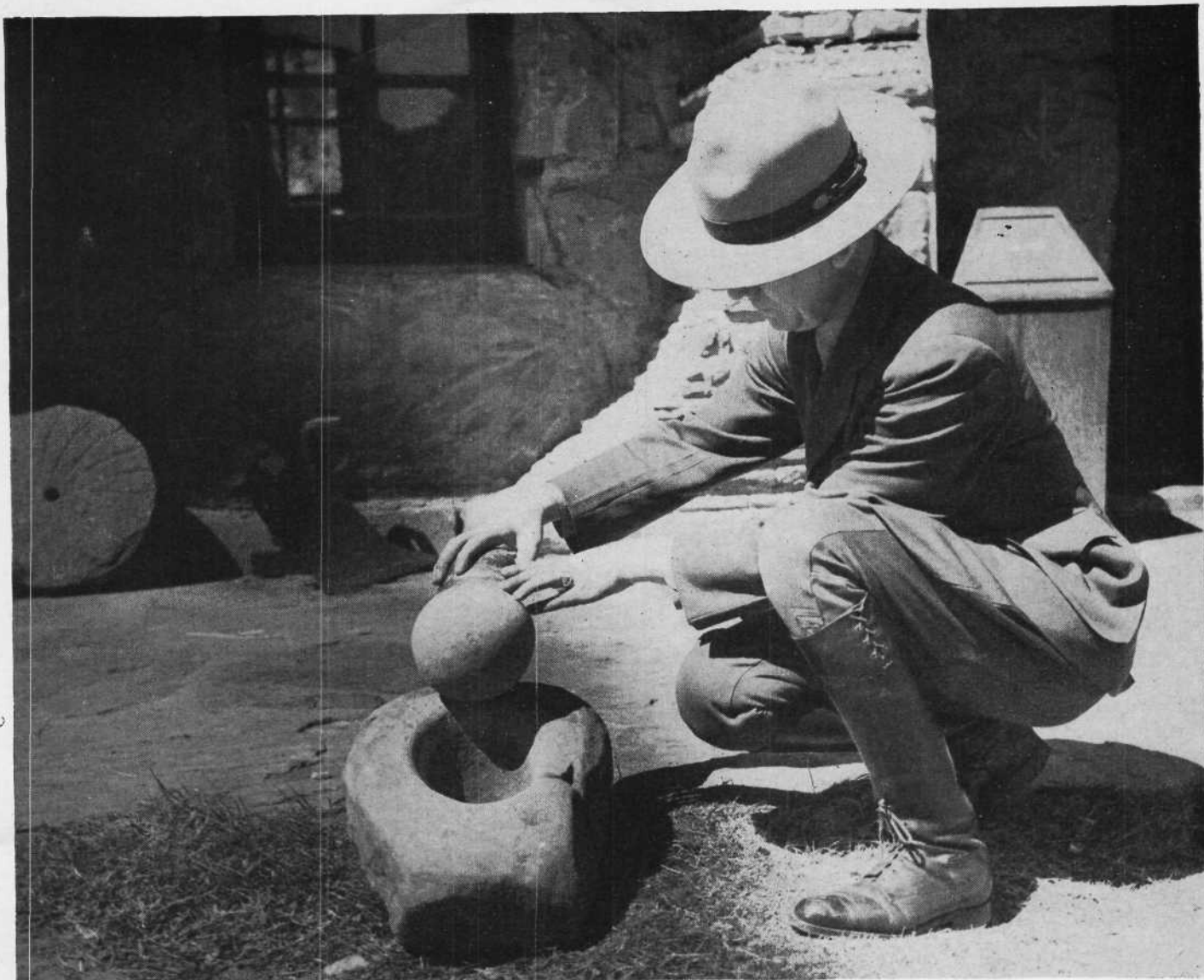
Since that eventful day Daisy has supplied the animation for our collection of morteros, which are liberally distributed around the yard. The birds, which formerly monopolized the rocks, now have to watch their opportunity to steal a bath, for Daisy puts in about eight hours a day toddling from one swimming hole to another.

In and out of one and into the next one she goes, finding at the bottom of one a juicy angle-worm, placed there by whoever dug it up from the garden, and dining sumptuously on Concord grapes slipped into another mortero by a generous feminine hand. Daisy is up at dawn and into the rock under the bedroom window. At deep dusk she drags her tired legs toward the big mortero we found in the cutbank. There she submerges, like a submarine, and sleeps soundly till daybreak.

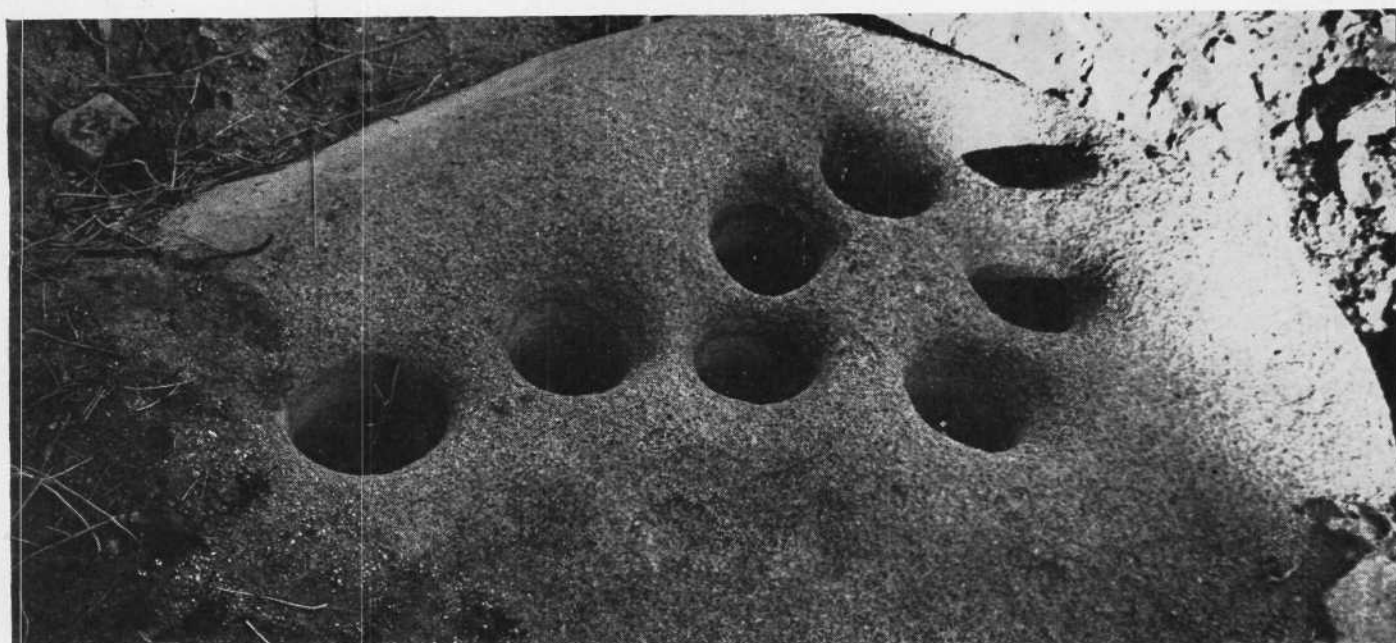
In quest of Indian relics we have driven as many as 2100 miles and returned with only one mortero. Again, we have collected two or three in a single day, on some Indian reservation, less than 150 miles from home. One time we would stop to see Mary Osuna, a Mission Indian woman residing at the side of the road a few miles south from Warner's Springs, and she would have none. A month later she may have a couple of them. Her grandchildren pick them up around there, especially at the old camp over the Palm Springs side of the mountains.

Some people labor under the impression that the proper way to collect morteros is to dig for them in aboriginal burial grounds. In ancient Indian villages, yes, but not in burial places because, almost unfailingly, when the Indians buried the mortero with its owner the rock was first broken in two pieces and then turned





*A ranger at Zion National park examining an unusually symmetrical Pabute Indian metate. The crushing end of the pestle is as round as a croquet ball.*



*This fine Indian grinding mill, weighing many tons, is seen by visitors near Tinajas Altas along the Camino del Diablo in southern Arizona.*

upside down upon the breast of the deceased. Furthermore, it no longer is permissible to dig in Indian burial grounds for the recovery of relics.

Occasionally someone plows out morteros from some spot where Indians used to camp. In creating a prison farm on a section of sagebrush and sand north of Ojai, the city of Ventura some years ago plowed out dozens of fine morteros in a tract among liveoaks. These are now to be seen in the museum at the courthouse in Ventura. In grading space for an athletic field at Elsinore workmen gouged scores of them from a hillside with their grading equipment.

A couple of decades ago Dominic Soto, an Indian residing in the Cahuilla country, near Anza, brought to light 35 to 50 morteros of various sizes while putting his ranch under cultivation. He stood these on edge, using them as a retaining wall along the driveway and walk leading to his front door. We were never able to persuade Soto to sell or trade any of these.

The two most unusual morteros that ever came to our attention belong to steadfast collectors. "Happy" Sharp, who lives in a cabin near the crest of the highway between El Centro and San Diego, has a huge mortero with grinding recesses on opposite sides. Turn it up or down and you find a deep hole in which to grind grain. Our recollection is that "Happy"

found this in the bleak and arid stretch of country between his cabin and the Mexican border. The other unusual mortero was dug up on Catalina Island. It is oblong in shape and has two recesses, side by side, with a narrow saddle of rock between them. It is a perfect twin, and we laid eyes on it in the little museum at the top of the hill, above Avalon.

The most unusual mortero in our collection is a rock nearly three feet across the face. It has four grinding holes of different sizes, on its face. We found it in the back yard of a Pahute woman near Ft. Independence. She said her husband discovered it in a desolate stretch of country extending up to the foot of Mt. Whitney. He wound a log-chain around it, hitched a team to it, and dragged it down to their cabin.

We paid her what she asked for it, which was less than we expected she would want. In excavating around it we found that it was as deep in the ground as it was above ground, which was at least a foot. Climbing into the sedan, we drove to Bishop and hired two husky laborers to help load the rock.

Opening the rear door, and placing a plank upon the edge of the doorstep, we tipped the mortero on edge and rolled it into the back end of the car, leaning it against boards placed against the back-seat cushion. The rock weighed in excess of

600 pounds. Back in Los Angeles, we had no way of getting the mortero unloaded. Two men couldn't turn the trick. Twice we got a helper, but couldn't find two helpers.

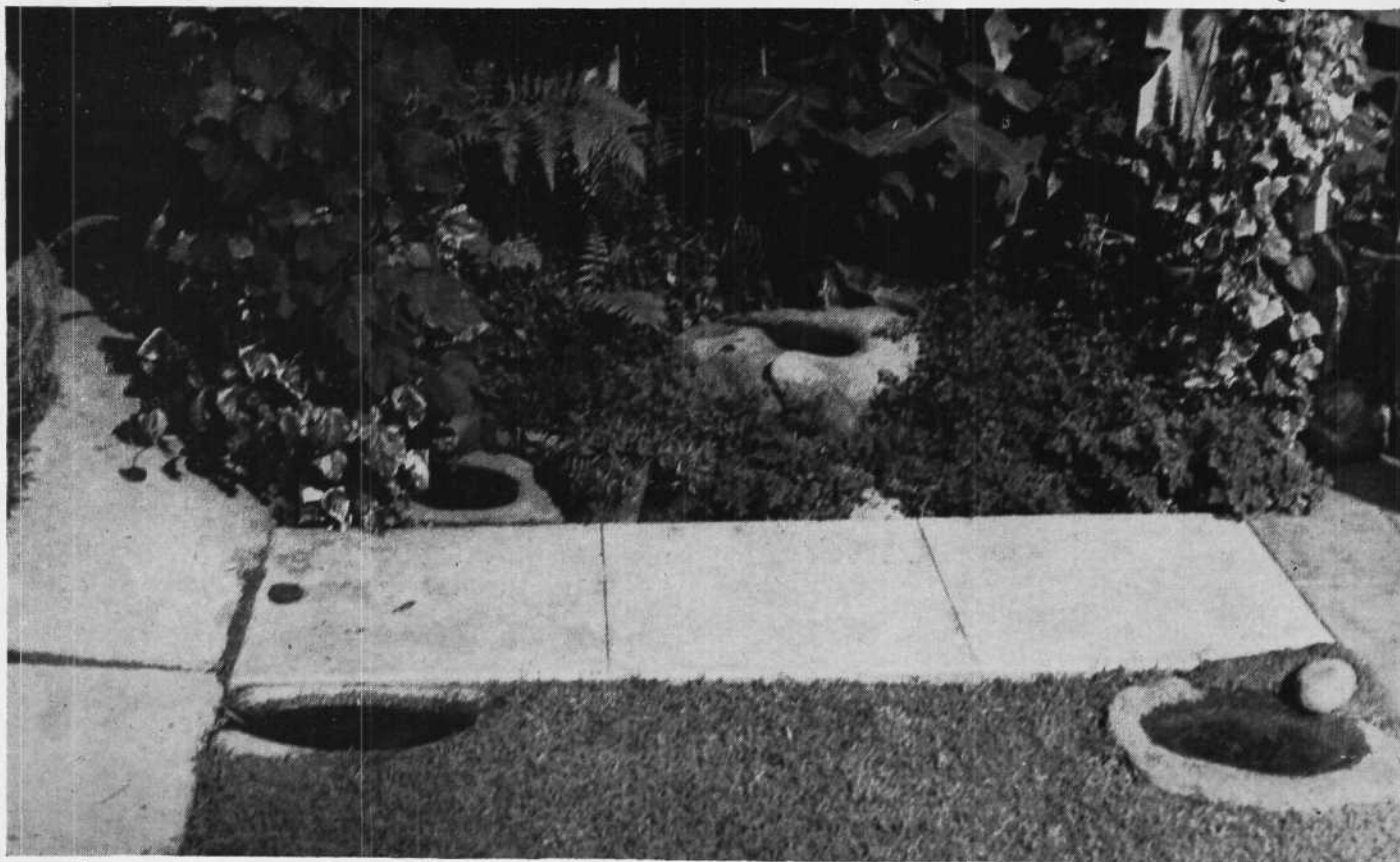
We drove around Los Angeles and neighboring communities for three weeks with that boulder in the back part of the car. Finally we succeeded in rounding up two men who could both help at the same hour, and so we managed to land that largest mortero of our collection at the rear of our back yard, near the outdoor fireplace, where it shows up as a real museum piece.

#### **SIX COLORADO TRIPS PLANNED THIS SEASON**

Harry L. Aleson of Boulder City, Nevada, Colorado river explorer, plans to leave Lee's Ferry with three companions the latter part of March or early in April for a power boat trip 177 miles up the Colorado to Rainbow bridge and other points. If successful the trip is to be repeated in August.

Among the six river trips planned by Aleson for the 1945 season is an attempt to reach Havasu and Bright Angel from Lake Mead in June.

Aleson has a fine program of moving pictures taken on past trips on the Colorado which he has been showing to Southern California audiences during the past winter.



*These morteros in the back yard of the author's home serve as bird baths—  
and a cold plunge for Daisy the turtle.*





*These Indian lads have big brothers in the navy—and perhaps the milkweed floss which they gathered will help to save the lives of the men on the ships. U. S. Indian Service photo.*

# Indian Givers

By DAMA LANGLEY

**They didn't have much to give—those poverty ridden native Americans who dwell on an arid reservation in northeastern Utah. But they wanted to help the war effort—and so they went out and gathered milkweed pods, and then separated the lint from the seed by hand. Their gift did not measure big in dollars and cents—but it paid rich reward in happiness to the givers because they gave the most that they could.**

**I**N northeastern Utah lies a desert region known as the Uintah Basin, and in 1861 the Mormon Church sent an exploration party there with the idea of turning it into one of their delightfully fruitful valleys. Hundreds of desert spots had been reclaimed and brought into production by those zealous pioneers, and it was hoped this remote spot held possibilities. The Head of the Church in Salt Lake City received this report:

"This section is measurably valueless

(their spelling, not mine) except to hold the world together!"

With that valuation on record it followed without question that the thing to do was "give it back to the Indians." President Lincoln did just that, making the Uintah-Ouray reservation headquarters there by executive proclamation in 1863. Here the Ouray-Uintah portion of the Ute tribe was placed to live or die according to their ability to survive under almost incredible conditions.

Major Powell, one-armed explorer of

the Colorado River, visited Whiterocks in 1868. Of this agency site he wrote in his diary: "The landscape everywhere away from the river is of rocks; tables of rock, plateaus of rock, terraces of rock, ten thousand strangely carved forms. Rocks everywhere, and no vegetation, no soil, no sand . . ." He had plenty of time to look the landscape over while his companions were trying to repair their wrecked river boats and recover equipment lost in the rapids.

Always the Uintahs have been hungry

and wretched and destitute, but they struggled along, and now out of that most desolate of all Indian reservations comes a heart-warming story.

The Uintah children around Whiterock school have just given \$18.30 to the Red Cross.

To white children whose every whim is satisfied, who have ice cream cones and candy, and factory-made kites and roller skates, the sum of \$18.30 may look very small. But that amount of money looks like a million to an Indian child.

Practically every able bodied man of the tribe has long since gone to war, and the younger women are working at distant war plants. The children left at home, the only home they have ever known, talked of ways they could help end the war and bring their folks back again.

"What can we do?" they asked their teachers over and over. The answer came out of the clear blue sky! A radio program told of the need of milkweed floss as a substitute for kapoc no longer available since the Japs occupied the East Indies. Teachers and children listened. Kapoc was necessary for filling life preservers and for aviators' flying vests; to stuff mattresses and pillows for hospital beds, and for insulation purposes. Only the supply in the United States and that on ships en route when war struck was available when the great need came. The speaker ended his talk: "Milkweed goes to war. The collection of milkweed floss is vital to the

war effort. Boys and girls can now effectively share in this program."

Around Whiterocks and over the reservation "valueless except to hold the world together" the huge milkweed, *Asclepias speciosa*, flourishes. It has taken possession of the waste places, crowds the banks of irrigation ditches, and wherever its probing roots can find a bit of moisture it spreads its dull green leaves and opens the big clusters of dusty pink blossoms.

While waiting for specific instructions regarding the collecting and preparing of the floss, the children spent their playhours in locating new plants and protecting them against destruction.

Evenings were spent bragging about how many new growths had been discovered and how many clusters of bloom were on each plant. Two precious months went by before the teachers could get any information from the processing firm engaged by the government to convert milkweed floss into war material. When the information came it was almost too late to save this year's crop. All the directions for collecting and curing the big pods were useless with the season so far advanced, and no provision was made for collecting or forwarding less than carload lots.

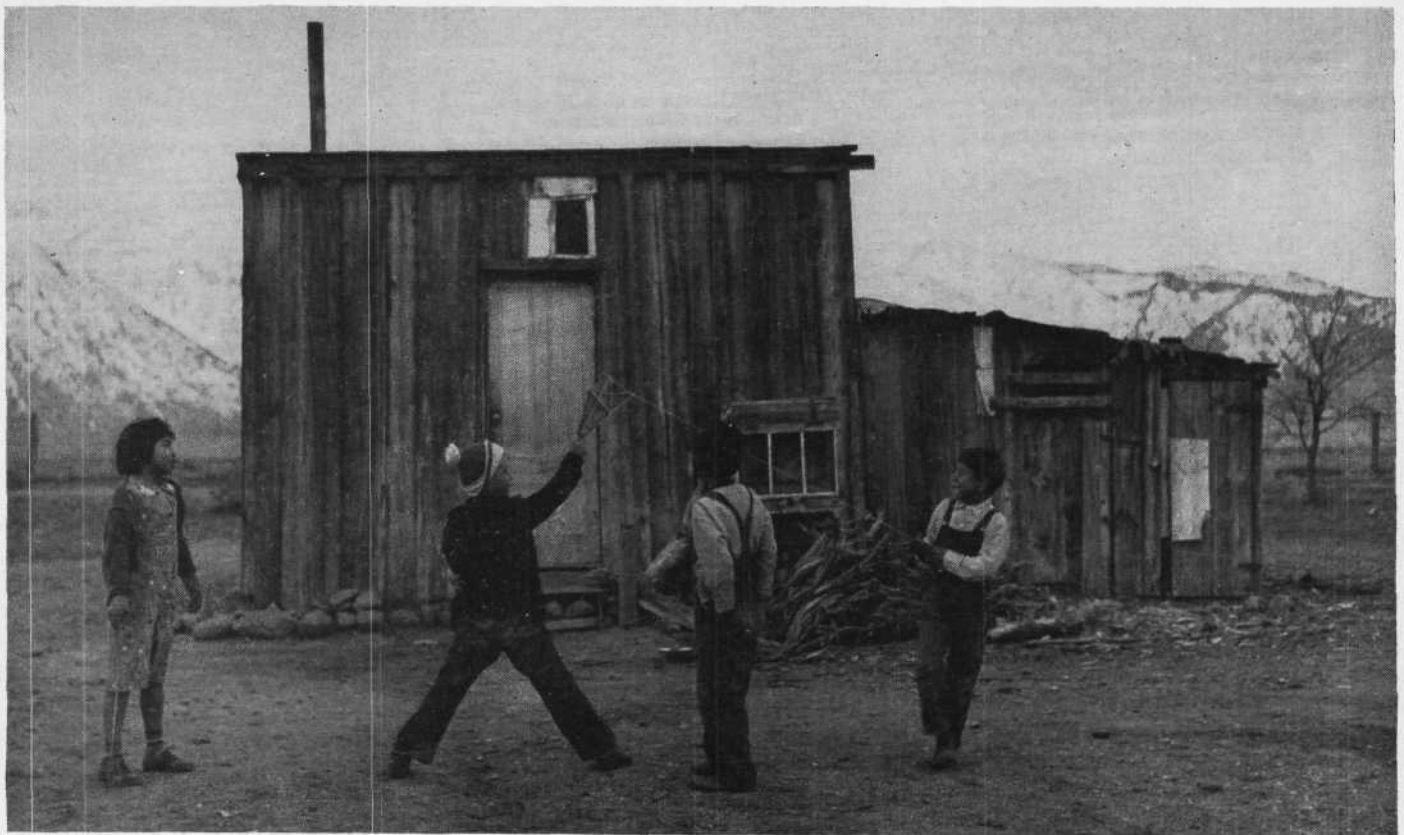
Again the teachers and children held conferences.

"Can't we open the pods, take the seeds off and just mail the floss to the factory?" one of the older girls asked.

Inside of two hours the big boys and girls of the school (ten and twelve year olds are the 'big' ones in that school) were coming in with sacks filled with pods cut from the stalks. They had been told to select the greener pods not already beginning to open. The pods were dumped on the floor of the big gymnasium and, two weeks later the last of the plunder was salvaged.

"We mustn't whistle or talk or sing," one of the teachers explained, "or the floss will fly all over the room!" That took a lot of the fun away because Indian children keep up a steady chatter and banter while they work with their hands. Soon the silence became a game and motions and suppressed giggles kept things enlivened. All at once a bit of floss landed on the nose of a youngster and the resulting sneeze practically sunk a troop carrier with all hands lost. The unhappy culprit was in disgrace until other children and even a teacher began to sneeze.

The school nurse came to the rescue with strips of gauze with which each worker was muzzled against breathing the floss. That *did* make the game exciting. Masked raiders stripped the husk from the floss core. Disguised pirates stripped the brown seed from the roll and delivered the treasure to a teacher who placed it in a container made of two thicknesses of wire screening. The core in the center of the floss held the silk together until air



Uintah children gave up their play-time hours to go out and gather milkweed for the navy.  
U. S. Indian Service photo.



and sun struck it, then almost instantly the floss fluffed up to gigantic proportions.

## Sez Hard Rock Shorty of Death Valley

By OWEN THAMER



Hard Rock Shorty edged his chair up a few inches closer to the old wood-burner in the center of the Inferno general store and filled his pipe with rough-cut. The winter wind was rattling the windows.

"You fellers a'been talkin' all evenin' about ghost mines," he remarked. "Well, the spookiest thing I ever saw wasn't in a mine at all. It was a cactus!"

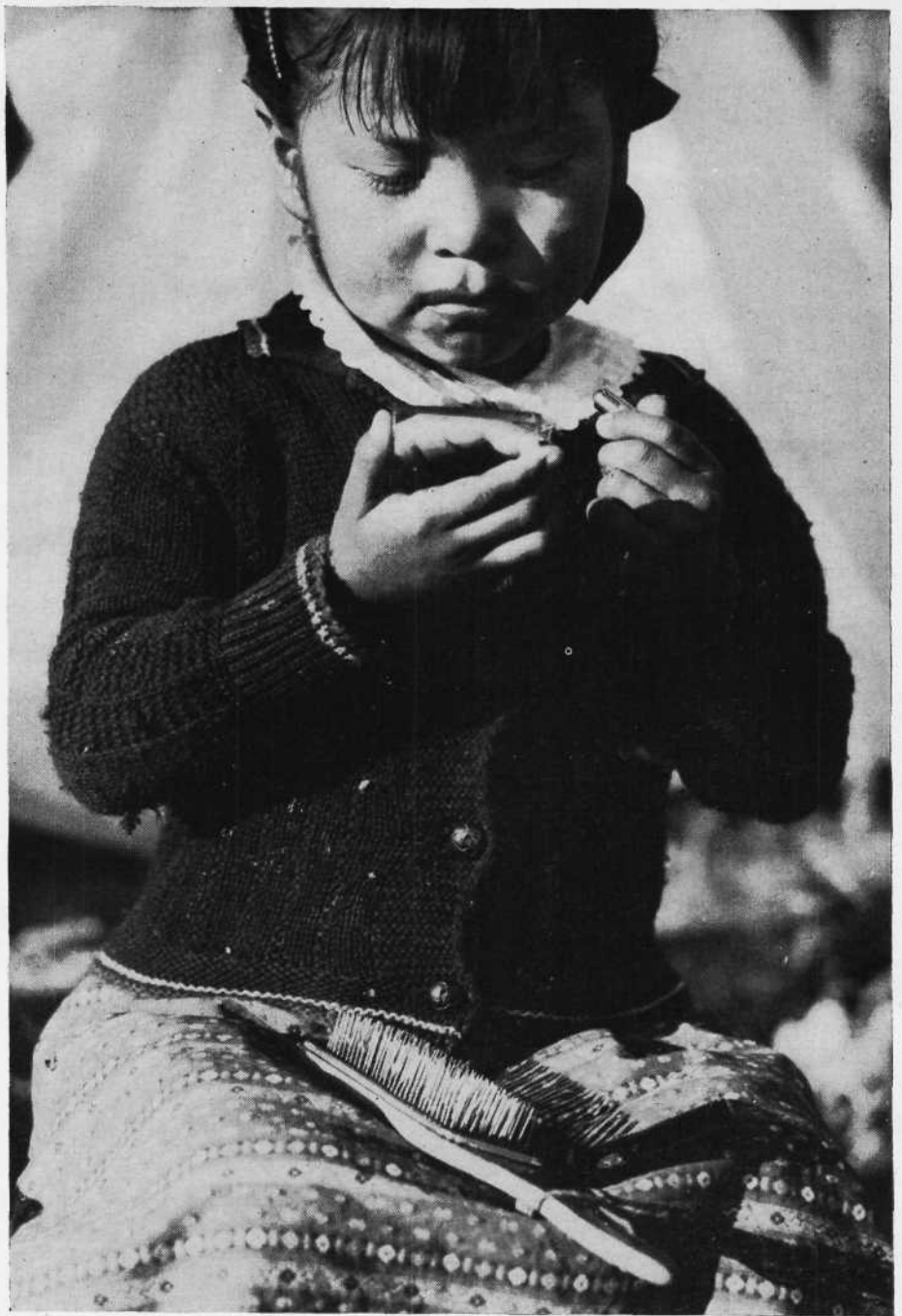
Shorty waited a minute and looked around the circle to see if everybody was listening. "Yessir, a cactus, and 'til I figgered out how it got that way I was plumb flabbergasted.

"I was prospectin' over Panamint way—an' I made dry camp one night beside a big barrel cactus. At least I thought it was when I stopped there. As I was takin' the pack off'n the burro I heard a swish. It knocked my hat off and tore a hole in my sleeve. I dropped flat like an Indian. Well, nothin' more happened so I looked around and there in the spot where I'd seen that barrel cactus was one o' them spindly ocotillos with its stalks awavin'.

"'Eyes must be goin' bad,' I sez to myself. 'Or this summer heat's gettin' me.'

"I kept thinkin' about that for a long time. Then one day out on the flat where all them dust devils play around in summer, I found out what changed that barrel cactus into an ocotillo. One of them whirlwinds was coming across the desert right toward me, the wind going 'round in a spiral just like a young cyclone. When it come to an ocotillo it started twistin' them long limbs around each other, and braided them up so tight they looked just like a barrel cactus.

"Then I knew what happened over in the Panamints that evenin' I camped there. One o' them ocotillos 'd just got around to untwistin' itself."



*This little miss who gathered milkweed learns about lipstick—her first experience.  
U. S. Indian Service photo.*

Fifteen pounds of milkweed pods make a pound of floss and when the season was ended they had sixty-one pounds ready to ship. By tightly cramming it in, ten pounds of floss could be packed in a hundred pound sugar bag, and the floss was mailed that way.

Six posters made by the children were forwarded along with the floss. Each poster told a story. One showed a milkweed plant sapping precious water needed to produce food. Another pointed out that milkweed is deadly to young animals, and many lambs and calves die from eating it.

Perhaps the most striking picture was a young Indian in full war paint attacking a Jap with a bow and arrow. The arrow is tipped with a milkweed pod.

Neatly lettered on one was the information that milkweed floss weighs one-sixth what wool does and is much warmer; twenty-eight ounces of floss will keep a survivor of a torpedoed ship afloat 140 hours; oil extracted from the seed is used to lubricate bullets; and that milkweed grows abundantly even in desert places.

It was a great day when a check in the amount of \$18.30, payment for the sixty-one pounds of floss, was passed from child to child. After the tangible evidence had been touched by each milkweed worker, it was endorsed over to the Red Cross Service without a dissenting vote.

Indian Givers, those underprivileged children on a Utah Desert.

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These magazines are from our surplus files. Part of them are newsstand returns, but all complete and in good condition.

In ordering merely specify the A-List or B-List, etc. Or, if you wish to make up a special list of your own from the magazines listed on this page, the rate will be the same—six for \$1.00 postpaid to you. Single magazines from any of these lists will be mailed for 25 cents.

### MINERAL FIELD TRIPS— A-LIST

Fossil Hunters in Tropic Shales. Map.	
John Hilton	April '41
Opal Hunters in Last Chance Canyon. Map.	
John Hilton	May '42
In a Rock Collector's Paradise. Map.	
Clark Harrison	June '42
Crystals that Fade in the Sunlight. Map.	
John Hilton	Aug. '42
Crystals From an Old Mine Dump. Map.	
Bertha G. Brown	Sept. '42
Gem Stones in Veins of Coal. Map.	
Charles Kelly	Nov. '42

### EXPLORATION AND ADVENTURE— B-LIST

We Camped in Havasu Canyon. Map.	
Randall Henderson	June '42
Gold Hunters are Like That. Charles Kelly	July '42
Playground in the Utah Wilderness. Map.	
Charles Kelly	Aug. '42
By Boat to the Lake of Mystery. Map.	
Godfrey Sykes	Sept. '42
River Gold. Charles Kelly	Oct. '42
Miner's Hell. Map. Randall Henderson	Dec. '42

### PERSONALITIES— C-LIST

The Saga of John Searles. Ora Lee Oberteuffer	Oct. '42
Capt. Jeffords—Blood Brother of the Apaches.	
Sherman Baker	Nov. '42
Charley Brown of Shoshone. Wm. Caruthers	Dec. '42
Harry MacCloskey—Saddle Tramp. Kelly	Mar. '43
"Dad" Fairbanks. Wm. Caruthers	May '43
Clarence Budington Kelland. Oren Arnold	Aug. '43

### INDIAN LORE— D-LIST

Rain Sing. By Charles Kelly	Sept. '42
Trail to the Healing Waters of Tosido. Map.	
Van Valkenburgh	Oct. '42
Basketmaker of the Hualpai. Margaret Stone	Nov. '42
Shrine of the Three Babies. Joyce R. Muench	Mar. '43
I Went to the Hogan of Kinlichini. Map.	
John Hansen	Aug. '43
Bean People of the Cactus Forest.	
Margaret Stone	Sept. '43

### SOUTHWEST HISTORY — E-LIST

Polk and Posey on the Warpath. Map.	
Dan Thrapp	May '42
Massacre in the Mountains. Map.	
Van Valkenburgh	Feb. '43
Autographs in Stone. Charles Kelly	June '43
Lee's Ferry on the Colorado. Kelly	Nov. '43
Black Horse of the Red Rocks. Map.	
Van Valkenburgh	Jan. '44
They Built an Island Home in the Desert. Map.	
Charles Kelly	Feb. '44

### LOST MINES— F-LIST

Big Antelope Placer Mine. John D. Mitchell	May '42
The Frenchman's Lost Gold Mine. Mitchell	Oct. '42
Lost Organ Grinder's Ledge. Mitchell	Nov. '42
Don Joaquin and His Lost Gold. Mitchell	May '43
Black Butte Gold. David Champion	Aug. '43
Lost Josephine Gold Mine. Kelly	Oct. '43

### DESERT NATURE STUDY— G-LIST

Hawk of the Wastelands. George Bradt	Sept. '42
How to Recognize Meteorites. H. H. Nininger	Dec. '42
Kit Fox—Phantom of the Moonlight.	
John L. Blackford	Jan. '43
Inside Story of Geodes. Jerry Laudermilk	May '43
Pelicans of Pyramid Lake. Map. M. Stone	June '43
Gnomes of the Desert Night. G. D. McClellan.	Sept. '43

### ARCHEOLOGY— H-LIST

Good Luck Shrines of the Desert.	
Arthur Woodward	Jan. '41
Cave of the Giant Sloths. Map. Laudermilk	Nov. '42
Ancient Antelope Run. Map. Kelly	Mar. '43
Adventure in Nevada Cave. Johns Harrington.	May '43
Sheep Hunting Artists of Black Canyon. Map.	
Vernon Smith	Mar. '44
Stone from Time's Beginning. Laudermilk	Aug. '44

### MINES AND MINING— I-LIST

Gold for the Vaults of America. Map.	
Helen Ashley Anderson	May '42
Chemicals From a Desert Lake. Map.	
H. H. Marquis	June '42
He Found His Glory Hole in His Own Front Yard.	
Clee Woods	Jan. '43
Yellow Aster Mine	June '43
Quest for Gold in Henry Mountains. Kelly	Aug. '43
Basalt—the Rock from Hades. Laudermilk	Mar. '44

### 23 OF THE ABOVE STORIES ARE ACCOMPANIED WITH MAPS

We suggest that you also order a loose-leaf binder to preserve these magazines for instant reference. Binders holding 12 copies will be sent for \$1.25 each.

THE *Desert* MAGAZINE  
El Centro, California



# LETTERS...

## Gold Doesn't Grow on Trees . . .

Tortilla Flat, Arizona

Dear Randall:

Many people are writing about Wagoner's Lost Ledge, etc. To save a lot of pointless conversation in which I am now having to engage, might I state in an open letter that I am not now conducting treasure hunting expeditions, that I usually prefer to work alone, have no maps for sale, and that gold in the natural way of things does not come sticking out of the rocks in large yellow gobs, that the claim I recently recorded is not on the Lost Dutchman but on some nickel-chromite-titanium ore, and that gold ore usually runs over \$200 per ton before gold is even visible in it.

In short, those persons who are seriously going in for treasure hunting hereabouts had better first acquire some knowledge of geology and of mineralogical-chemical reactions if they would stand a chance of success. For even lost mines do not come beyond the horizons of mineralization which are present here. Nor is there any atomic attraction method which works. Doodlebugs are unreliable, and the only way underground unseen ore can be found is by methods used and recognized by the mining profession, via electronic locators which merely measure induced differences between comparatively non-conductive (to electric currents) country rock and the conductive metallic ores, which of course is the Fisher-beam, Radar, *et al* principle.

Proper use of these instruments, contrary to what the manufacturers state, takes either years of field experience on known ores plus an excellent knowledge of applied electronics or the easy way of taking a geophysical engineering course such as Stanford offers. One does not just go out, turn on the juice. Technical interpretation of electrically caused reactions are always necessary in order to discern where, what and how much of who's ore is present. Or I would have been a millionaire a long while ago!

Seriously, since treasure hunting is my pet hobby, I am always glad to chin awhile with those like spirits, both male and female, who drop by my cabin, and who have the courtesy to obtain information on the subjects above before talking about them. For I have! The hard way!

BARRY STORM

• • •

## The Crown Was a Tobacco Can . . .

Willits, California

Dear R. H.

The controversy regarding the Desert Rats reminds me of something I had al-

most forgotten: That I was crowned King of the Desert Rats in 1921 at Fish Spring on the northwest side of Salton Sea.

The ceremony was performed by my partner E. H. Richards on one of my numerous trips to that territory, and the "crown" was a tin token associated with some brand of tobacco, picked up in the camp. As I sat on a box he came up behind me and placed the crown on my head and announced: "I hereby crown you King of the Desert Rats."

I have never claimed or used my title as there are so many more who are on the desert more than I, and who have more right to the title.

I regret to read in your February issue that the Bensons have left Ocotillo. I knew them well and always found them hospitable and friendly. I am sure many of my fellow Desert Rats will join me in wishing them well.

H. E. W. WILSON

• • •

## More Work for Jerry Laudermlik . . .

Treasure Island, California

Dear Mr. Laudermlik:

I read your article in the May '43 Desert Magazine. I really think it is swell. You know, the first question that people ask me when they would see the geodes in my collection, is how are they formed. I never really knew how to explain it before. It not only helps us who collect, by giving us a logical and satisfactory explanation, but it also lets others know so that they don't keep asking us. They seem to think that just because we collect mineral and rock specimens that we should know how everything like that is formed. It kind of puts us on the spot.

I really think that it would be a good idea to write a whole series of articles like that, explaining the formation of many of the common rocks and minerals and also some of the less common ones, for the benefit of the collectors and the people who ask all the questions. An article with the different types of petrified wood, and why some is one color and other pieces a different color. Also why Arizona wood is brilliantly colored and some still looks just like wood. A lot of people don't even know that most petrified wood has been replaced by silica and most of those who do know it, don't know how or why. I think that one on fossils would be very appropriate also. Many people don't know how or why, or under what conditions fossilization takes place.

RAE ANDERSON

## Lost in Hellhole Canyon . . .

Los Angeles, California

Dear Sirs:

Mr. Henderson's article in the February number on Hellhole canyon reminded me of an adventure to which I was a party that occurred there several years ago. It was in the summer of 1931 that I was a group leader at the YMCA Camp at Camp Marston in Pine Hills.

During the camp session a friend of mine took his group on a short trip to Borrego valley and Borrego Palm canyon. He had been there the year before but the boys were not familiar with the country. In some way the party got divided the first afternoon, and two of the boys, loaded down with more than their share of the equipment started up Hellhole canyon instead of Palm canyon. Not realizing that they were in the wrong canyon they proceeded, thinking the others were just ahead. It grew late so these two cached all their heavy equipment except one canteen and hurried unencumbered up the canyon. They were still hiking when it got dark, so they stopped at the dry mouth of the canyon and spent a very uncomfortable night, lost and without food and very little water. In fact they were not found until a searching party met them the next afternoon, a scared and badly sunburned pair of boys.

A sequel to the story was occasioned by the fact that the cache of supplies including several valuable items could not be found. After Camp Marston was over in August four of us went to Borrego valley for an outing of our own and determined to find the boys' cache. We spread out the entire width of the canyon and slowly started hiking up in a line. The cache was soon located by this method. However we left, convinced that Hellhole canyon was just as its name implies, an exceedingly hot, dry place.

I was much surprised and delighted to read that farther up there is vegetation similar to Palm canyon, and will endeavor to someday renew my acquaintance, I hope on more pleasant terms.

CARL R. ERICKSON

• • •

## Answer to the Gong Question . . .

Museum of the American Indian  
New York, N. Y.

Dear Sir:

We know of no instrument used by the American Indian that might be classified as a gong. It is quite possible the article you mention referred to the country in India.

E. K. BURNETT

Assistant to the Director

*Note—The above is an answer to Mrs. Clingan's request for information about an Indian gong in February '45 Desert.*

## Keeping the Records Straight . . .

Berkeley, California

Dear Sir:

In Charles Kelly's article in the December Desert Magazine "Donner Tragedy Relic Found," there appear to be two errors.

The Tablet on Murphy Cabin Boulder as shown in McGlashan's History of the Donner party shows the names of 42 persons as having perished, instead of 36 as stated in Kelly's article.

The Bidwell party crossed the Sierra Nevada in 1842, crossing about where Sonora pass now is. This was two years earlier than the Greenwood party which Kelly calls the first. There may have been one earlier still.

On page 32, you state that the Union Pacific crosses Great Salt Lake (Desert Quiz). Is it not the Southern Pacific?

I hope you will pardon me for being critical. I like your magazine. I also like accuracy.

LARRANCE PAGE

Dear Mr. Page:

*Desert Magazine has forwarded your letter to me, and I will try to answer your questions.*

1. *The tablet on the Donner monument listing names of those who died is incorrect. I believe 36 is the actual number. Most such markers are erected without sufficient research, and few of them carry historically correct information. This is especially true in Utah.*

2. *The Bidwell party entered California in 1841, but they had abandoned their wagons. My statement was that Greenwood guided the first wagon train into California, and that is correct. The Stevens-Townsend-Murphy party were the first to arrive in California with wagons, in 1844, guided by Greenwood.*

3. *I think Union Pacific is correct for your third question. See map and statement in advertisement on page 77 of "Newsweek" for Dec. 4, 1944. Western Pacific also crosses the southern tip of Great Salt Lake, during years of high water. At present their route is on dry land.*

*There was an emigrant party organized in 1843 to go to California, by J. B. Chiles, who had been with Bidwell in 1841. Chiles himself took a new route by way of Malheur river, but sent his wagons, with Joe Walker as guide, down the Humboldt and then through Walker pass. Or at least it was intended to take the wagons through Walker pass; however, they were abandoned before reaching that place, although the emigrants got through on foot or horseback. This*

*party and Bidwell's party, are the only known groups of emigrants to reach California overland by the central route before 1844, but neither of them succeeded in getting their wagons through.*

*I hope this takes care of your questions. If there are any others, will be glad to answer them.*

CHARLES KELLY

. . .

## Here's Competition for Hard Rock . . .

Prescott, Arizona

Dear Editor:

I am sure glad that you have gotten Hard Rock Shorty back with us again.

I was talking with a fellow the other day about Hard Rock, and he said he didn't care to read about him as he figured that what he said wasn't always the exact truth. Can you imagine anyone like that? Of course a person that really knows the Southwest desert knows that what Hard Rock talks about really can happen.

Take like me for instance. About a week ago I had to make a trip over to our power house at Irvine on Fossil creek. On my way back to Prescott I was bringing an old truck that we didn't need over there any more. She was in kinda poor shape—no radiator cap, door missing on driver's side, just sort of rickety all over.

But I was getting along okay until I passed through Jerome on my way up Mingus mountain where the grade is pretty steep. I noticed the water in the radiator was getting low. It had me worried considerably because there just isn't any water along there.

Well sir, you know just about that time I ran into the goshawfullest snow storm you ever tried to see through. Snowed so hard I couldn't hardly make out the front end of the truck. Old Mingus is mean enough to drive over when the sun is shining and the road is dry. In that snow storm I had to stop every few feet to see if I was still on the road or headin' toward the deep canyon on the off side.

I was so busy drivin' the car I forgot about the radiator—and the first thing I knowed the motor began to sputter and when I went out to see what was wrong the radiator was running over and the water threatening to drown the ignition. Yes, that was a heap of snow fallin' that day.

MOULTON B. SMITH

. . .

## Prospector's "Tall Tale?" . . .

Encinitas, California

Dear Desert:

Hardrock Humes of East San Diego vouches for this experience of his when he was prospecting near Wickenburg, Arizona. As usual he was bothered by packrats carrying off everything that was loose. One day, returning to camp, he encounter-

ed a large rattlesnake. Unable to find a stone or stick to kill it, he hurried to the tent to get his six-shooter. When he returned, he found a trader rat jumping around the snake just as they say a mongoose does around a cobra. The snake was striking every few seconds, but the rat would jump in and bite him behind the ears—a few more bites and the snake gave up and went limp.

Next day, he thought he'd cut off the rattles for a souvenir, but they were gone! Being curious, he got his shovel and raised up one side of the packrat's nest, which was in some brush nearby. There was the rat family with five little rats and about a dozen snake rattles—and everyone of the baby rats had a rattle to play with!

Hardrock claims that same packrat made a rich man of him. One night he took his best silver teaspoon, leaving in its place a piece of quartz. It showed gold, although he hadn't seen "color" anywhere in the vicinity. He put pancake flour in his gold pan, hoping the rat would get it on his feet and make it possible to track him. After ten days he was successful. The rat went into a crevice in a hill. The slit was too small for a man to crawl through, but after digging for five days he got inside the cavern. There he saw the winter home of the packrat and later found the seam where the gold was.

GUY O. GLAZIER

. . .

## I'll Be Coming Back to the Desert . . .

India

Dear D. M.

I've just finished reading the November and December issues of your incomparable magazine, and as usual, have but one complaint—there's not enough of it. After this scrap is over why not make it a weekly?

Being a native of Southern California, the desert cast its spell over me as a child, and has increased its power through the years that have followed. I was an avid reader of DM several years before entering the service and naturally it had to follow me over the seas.

For awhile I was stationed in the great western desert of India where the similarity to our Southwest is amazing. I took many hikes across great open bajadas and up steep-sided rocky mesas, finding many rocks and minerals that I recognized from collecting sorties made in the past on the Mojave. I was content to remain there for the duration, but soon was moved up into the jungle country where one finds mosquitoes and monsoons.

Now I await each issue of DM eagerly as it serves to take me out of this hot humid country for a short time and transport me to the desert I love and hope to return to some day. Keep up the splendid work and never never change anything. It's always been tops, so keep it that way.

GEORGE W. ZENT



# HERE AND THERE...on the Desert

## ARIZONA

### Bigger Dam Than Boulder . . .

PHOENIX—Speaking before the Colorado Society of Engineers at Denver in February, Walker K. Young, chief engineer of the U. S. Bureau of Reclamation disclosed preliminary plans for a superdam in the Colorado river which will dwarf Boulder dam. It was indicated that the site under consideration is at Bridge canyon, 120 miles upstream from Boulder.

### Farmers Get \$500,000 Settlement . . .

SAFFORD — Phelps Dodge corporation has agreed to pay the owners of 30,000 acres of irrigated land in Graham county \$500,000 in settlement for water taken to operate the copper concentrator at Morenci. The mining company originally estimated that it had sufficient water for its needs, but when war-time demands stepped up operations the corporation began to pump water out of San Francisco river, a tributary of the Gila, jeopardizing the supply of farmers. The farmers were guaranteed compensation for their losses, but brought suit in 1942 to insure an ample settlement. The half-million dollar agreement ends the litigation.

### Say Hopi Religion Forbids War . . .

TUCSON—Two Hopi tribesmen, Fred A. Pahongva and Roger Comahletztewa, under arrest as draft-dodgers, wrote a 4-page letter to the parole office stating that they had refused to fight for Uncle Sam because they have a greater duty to their religion than to their nation. It was asserted that the history of the Hopi people bears out this contention, although admitted that in the present war very few of the Hopi men have refused army service.

### Gift to Arizona Museum . . .

FLAGSTAFF—Museum of Northern Arizona announced on its 17th annual meeting that Mrs. Mary-Russell F. Colton, one of the trustees, has presented the institution with ten acres of land on which are a number of masonry and frame buildings. The gift adjoins the other property owned by the museum and brings the total holdings to 70 acres. When the new buildings are remodelled, they will provide greatly increased space for research.

The Museum of Northern Arizona is located three miles north of Flagstaff at the base of the San Francisco Peaks (altitude 12,640 ft.). In the past the museum has provided, each summer, research facilities for a few advanced students in geology, anthropology, and biology, and in the post-war period it is hoped that this service may be greatly increased.

## Fur for the Trappers . . .

FLAGSTAFF—To improve the fur resources of the state, Arizona has established a division of Fur Conservation within the state Game and Fish commission. B. C. Fox, former deputy game warden of Mohave county, is to head the new department. Fur animals in the state, especially beaver, have been increasing and large numbers of pelts have been taken along the Colorado river the past two years.

German war prisoners are reported to have picked 20,000,000 pounds of cotton for Arizona growers during the last quarter of 1944.

Boy Scouts at Safford picked 20 sacks of sage brush seed to re-seed an area where there is a shortage of this shrub.

## CALIFORNIA

### Weir in Colorado Closed . . .

BLYTHE—A \$25,000 reclamation bureau weir across the Colorado river, designed to raise the surface of the water and improve the Palo Verde valley water district's supply for irrigation purposes, has been closed, creating a granite apron entirely across the channel. Only about half the rock eventually to be dumped into the channel has been put in place, however. The weir became necessary when the comparatively clear water now coming down from Boulder and Parker dams above, sluiced out the river channel and dropped the water level so low as to make the Palo Verde intake ineffective.

### Water Flows in New Canal . . .

INDIO — While completion of the Coachella branch of the all-American canal is still many months away, portions of the 87 miles already finished are now being seasoned with a flow of water which advances two miles a day, according to the report of U. S. Bureau of Reclamation engineers. The Shea Construction company which has a contract for 20 miles of ditch approaching Indio from the east, expects to complete its sector by March 1946.

Percy S. Shumway of Paul's Pioneer Date Garden south of Indio, died following a heart attack February 16. He was a veteran of World War I. Surviving members of the family include his wife, Nina Paul Shumway, who has been a contributor to Desert Magazine.

Senator Ben Hulse of Imperial valley has introduced a measure in the state legislature providing for the establishment of an agricultural college in Southern California as part of the state university system.

First rattlesnake of the season was reported by two Banning boys who found the reptile while on a hike during the latter part of February, and promptly killed it.

## BACK COPIES WANTED--

Desert Magazine office has a number of unfilled requests for January and February copies, 1945. If the subscribers have extra copies available, or have no further use for the regular copy, we will appreciate your mailing them to the Desert office. They will be paid for at 25c a copy.

We are also needing some of the early issues to complete orders for back files, and will pay the following for good magazines:

November '37	\$3.00
April '38	1.00
January '39	1.00
February '39	2.00
May '39	1.00
June '39	1.00

DESERT MAGAZINE  
El Centro, California

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D

**OLD MEXICO SHOP**  
SANTA FE, NEW MEXICO

### Propose Park at Caliente Springs . . .

JULIAN—Supervisors of San Diego county are reported to be preparing an application to the department of interior requesting that Agua Caliente springs in Vallecito valley be deeded to San Diego for county park purposes.

### Anza Park May Exchange Lands . . .

BORREGO—Under the provisions of a bill now before the California legislature, the state park commission is authorized to exchange certain of its holdings within the general area of the Anza Desert State park for private lands adjoining the park. The park now includes lands on the floor of Borrego valley which have agricultural value, and the measure is designed to permit the exchange of these acreages for scenic areas now privately held.

### NEVADA

#### Studies Habits of Tortoise . . .

CARSON CITY—A desert tortoise in search of water will travel from four to five miles a day, according to the report of Dr. Frank Richardson, assistant professor of biology at the state university, who has been studying the habits of this member of the reptile family. The life

span of the tortoise is about 20 years, and because of its fine adaptation to desert conditions there is no danger of extinction if left undisturbed by man. Nevada is considering a statute to protect the tortoise similar to that adopted several years ago by California.

### Las Vegas Asks for State Building . . .

LAS VEGAS—The legislature has been asked to appropriate \$100,000 from the state's post-war reserve fund to erect a building to house state offices in this city. It was stated that in a number of instances state officers serving the Las Vegas area are required to use their residences as office quarters due to lack of housing.

### Would Change State Boundary . . .

RENO—The perennial dispute over the California-Nevada boundary has been revived by the introduction in the Nevada legislature of a resolution calling for a vote of northwestern Nevadans and northeastern Californians to determine whether or not there shall be a change in state lines. Nevadans assert that the boundary originally was established as the summit ridge of the Sierras, but that California ignored this line in fixing the present boundary.

### To Start Processing Guano . . .

ELY—Bats which lived in caves in the peaks high above Spring valley, 40 miles southeast of here, provided a new industry for this part of Nevada—the recovery and processing of guano. The Interstate Guano company, headed by E. R. Woolley, has completed construction of a processing plant to start turning the bat deposits into fertilizer. Even with a limited crew it is estimated that 400 to 500 sacks of guano will be taken from the deposits daily. The caves from which it will come have not yet been fully explored.

### NEW MEXICO

#### Trees for Arid Acres . . .

ALBUQUERQUE—Encouraged by the Soil Conservation service, hundreds of New Mexico farmers are planting trees and shrubs around their homes in areas where lack of rain has discouraged these plantings in the past. Federal men from the forestry service have demonstrated that many species of trees may be grown by diverting the runoff from roads and pastures during the occasional rainfalls. Of 124,000 trees distributed by the Soil Conservation service this season, Chinese elm has been the most popular, 32,775 of these having been given away to applicants.

#### Should Indian Lands Be Taxed . . .

SANTA FE—The supreme court is to be asked to determine whether or not a state has the right to tax Indian lands within its boundaries. To secure a decision on this point, the New Mexico State Tax Commission has ordered Taos county to place on the county tax rolls 100,000 acres of land belonging to the Taos Indian pueblo. It is expected that the U. S. Indian service will challenge the move on behalf of the Indians.

## The Desert Trading Post

*Classified advertising in this section costs five cents a word, \$1.00 minimum per issue—  
Actually about one-half cent per thousand readers.*

### MISCELLANEOUS

Large stock of petrified palm. Twenty tons of rock specimens. Navajo rugs, reservation hand hammered silver and baskets from many tribes. Many other handmade artifacts. Daniels Indian Trading Post, 401 West Foot-hill Blvd., Fontana, Calif.

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EMPLOYMENT WANTED. By middle age couple without dependents, in college, museum, hospital, resort or anywhere where experiences of both including mineralogy, geology, archeology, chemistry, bacteriology, x-ray technique including diffraction and spectrometry and stenography are partly or wholly essential. Experienced in expedition work in remote areas. Reasonable salary for employment of both in permanent positions. Address Box L, Desert Magazine, El Centro, Calif.

DESERT TEA: In original form. Large bundle only \$1.00 complete with instructions for use. Desert Pets and antiques sold and exchanged. Grail Fuller's BorXpost Ranch, Daggett, Calif.

Trade eight inch astronomical telescope for a quantity of petrified wood. Write A. Hegel, 4418 So. Hoover, Los Angeles 37, Calif.

NAVAJO RUGS: Large, medium and saddle blankets. Authentic Navajo and Zuni jewelry. Famous Lorenzo Hubbell Co. rugs, Hopi pottery and baskets. Hubbell's Indian Trading Post, Tom Hubbell, 2331 Pico, Santa Monica, Calif. Phone 50603.

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We sell Nationally Recognized Fur Producing Karakuls. Have permanent market for wool and furs. Attractive investment for rancher or city investor. James Yoakam, National Distributor, 1128 No. Hill Ave., Pasadena, California.

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### QUIZ ANSWERS

*Questions are on page 16*

- 1—Let some air out of the tires.
- 2—North.
- 3—A lodge room for men.
- 4—Petroglyphs.
- 5—Black canyon.
- 6—Sand dunes.
- 7—Tea.
- 8—National monument.
- 9—North.
- 10—Hornaday.
- 11—Igneous rock.
- 12—Powell.
- 13—Nevada.
- 14—Shrub.
- 15—Utah.
- 16—Copper pit.
- 17—In quest of the Seven Cities of Cibola.
- 18—Near Parker, Arizona.
- 19—Saguaro cactus.
- 20—Coachella valley.



### Navajo Seek More Water . . .

SHIPROCK—Additional water for irrigation on the Navajo reservation will be brought from the San Juan river if efforts of the New Mexico Indian Affairs association are successful. Sam Akeah, vice chairman of the Navajo Tribal council, told the association that as a result of the livestock reduction program the Indians are barely able to make a living on their lands, and that more water is needed.

### Would Abolish Indian Bureau . . .

ALBUQUERQUE—Declaring that the Indians would work out their own problems quickly if they were not treated as wards of the government, Senator Moore of Oklahoma has announced that he will reintroduce legislation abolishing the federal Bureau of Indian Affairs. The Oklahoma senator admitted that such a proposal has little chance of becoming a law.

### Record Movement of Indians . . .

GALLUP—War has resulted in the greatest exodus of Indians from the reservations of the Southwest in history, according to the annual report submitted by Indian Commissioner John Collier's office to Secretary Ickes. Collier reported that 55 per cent of the able-bodied men between 18 and 50 years are in the armed forces or in war industries, and that more than 10,000 men, women and children have left their homes for employment elsewhere. Despite this reduction of manpower, the value of agricultural production on the reservations amounted to \$19,000,000 in 1943—a gain of nearly \$2,000,000 over the previous year.

August 16-19 has been set as the time for the annual Inter-Tribal Indian ceremonial at Gallup. The association which conducts these events will continue its wartime policy of inviting only the tribesmen who reside within reasonable traveling distance from Gallup.

Henry Gasper has been installed in office for his fourth 2-year term as governor of Zuñi pueblo. Oath of office to the governor and his staff was administered by Macelita, high priest of the north. Canes and badges of office were presented during the ceremony.

### For Nice Things . . .

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## UTAH

### May Go Back to Reservation . . .

SALT LAKE CITY — White man's ways are quite confusing to Tabby Young, 65-year-old Indian who resides in this city. Recently he was knocked down and injured when struck by a traffic patrol car. And as if that wasn't enough damage to do a free native American, as soon as he had recovered he was given a citation for jay-walking.

### Statue for Brigham Young Urged . . .

SALT LAKE CITY—A resolution before the Utah house of representatives would provide \$20,000 for the placing of a statue of Brigham Young in the national statutory hall in Washington. The plan was proposed two years ago and a committee at that time selected Mahroni Young, grandson of Brigham Young, as the sculptor.

### Would Control Game Hunting . . .

SALT LAKE CITY—Plans for new laws governing the control of big game in Utah are now under discussion in the legislature. The proposed law, instead of establishing fixed open and closed seasons for hunters, would set up five districts in the state where hearings would be held periodically to determine the number of game animals to be killed for the season. The purpose of the measure is to limit hunters to the shooting of game animals only when they have become so numerous as to threaten livestock feeding.

### Planning Postwar Roads . . .

OGDEN—Utah will have a federal allocation of \$4,651,056 for postwar road construction under the national highway program announced from Washington. This is part of the first \$500,000,000 authorized by congress as part of a \$1,500,000,000 federal highway project. The sum now allotted to Utah represents 74 per cent of the Utah road fund, the state being required to raise an additional 26 percent to match the federal money. A committee representing 62 communities in 19 cities has been formed to plan the road construction program.

Twenty-four tracts of land ranging from 80 to 1800 acres, and totalling 13,300 acres within the Central Utah Relocation center are to be leased to farmers this spring. Applicants have been asked to put in bids for leases.

Nearly \$4,000,000 in new post-war construction in Utah is provided for in bills introduced in the legislature. Hospitals and colleges will be the main beneficiaries.

Increasing damage caused by coyotes resulted in a general invitation to sportsmen in the Salt Lake area to take part in a coyote drive the latter part of February.

A grant of \$15,000 to the University of Utah has been made by the Rockefeller foundation, the money to be used for the collection and use of historical source materials.

### A WESTERN THRILL

"Courage," a remarkable oil painting 20x60 feet, the Covered Wagon Train crossing the desert in '68. Over a year in painting. On display (free) at Knott's Berry Place where the Boysenberry was introduced to the world and famous for fried chicken dinners with luscious Boysenberry pie.

You'll want (1) A 4-color picture of this huge painting suitable for framing. (2) A 36-page handsomely illustrated souvenir, pictures and original drawings, of Ghost Town Village and story of this roadside stand which grew to a \$600,000 annual business. (3) One year's subscription (6 numbers) to our illustrated bi-monthly magazine of the West. True tales of the days of gold, achievements of westerners today and courageous thoughts for days to come. Mention this paper and enclose one dollar for all three and get authentic western facts. Postpaid.

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# Mines and Mining . .

## Carson City, Nevada . . .

Published by the Nevada State Bureau of mines, a new bulletin titled "Quicksilver Deposits in Nevada" recently has been prepared by Edgar H. Bailey and David A. Phoenix, of the U. S. Geological Survey. The 200-page book is supplemented by numerous maps and includes an exhaustive study of quicksilver deposits in all parts of the state. The book is sold for \$1.00.

## Gallup, New Mexico . . .

An increased amount of silver will be available for Indian craftsmen after March 1, according to a ruling of the War Production Board received by M. L. Woodard, secretary of the United Indian Traders association. The silver is to be released from stocks hoarded by the United States Treasury department, but the method of release and the price are not yet known.

## Washington, D. C. . . .

Production of 35%-or-better manganese in the United States in 1944 amounted to 243,000 short tons, the second most productive year on record, according to the report of the U. S. Bureau of mines. Most

of the low grade ore, totalling 1,660,000 short tons, came from the Lake Superior region. Principal shippers of high grade ore were: Anaconda Copper company of Montana, Manganese and Development company of Montana, Dominion Manganese corporation of Virginia and Manganese Ore company of Nevada.

## Tombstone, Arizona . . .

The Lucky Cuss and other well known old mines in this area may again be in highly profitable operation if new milling processes now being tested at Salt Lake City prove successful. Recently Charles A. Kumke of the U. S. Bureau of Mines has been here gathering samples for shipment to Salt Lake. From the Lucky Cuss mine came a specimen of manganese-silver, the former estimated at 60 per cent, and the latter at six ounces a ton.

## Winnemucca, Nevada . . .

According to reports from New York, 1000 flasks of Spanish quicksilver are being offered on the American market at prices ranging from \$155 to \$160 a flask, compared with the current quotation of from \$165 to \$175 for American metal.

## Julian, California . . .

There is still the possibility of a profitable gold production from the Julian district in San Diego county, according to the report of Roy M. Kepner Jr., of the county agricultural commissioner's office in a report on natural resources of the county. In addition to gold, there is also the prospect of profitable mining of tungsten and copper. Kepner reported that while the county's gem stones, tourmaline, topaz, kunzite, beryl and aquamarine are meeting with competition from synthetic stones, the demand for gems has remained good. Production has been curtailed during the war due to the scarcity of explosives and labor.

The Yerington, Nevada, plant of the International Smelting company, in operation since 1942, has been closed down and the equipment is being removed. About 50 miners, many of whom have families in Yerington, are affected.

Return by the nations of the world to the gold standard is urged by the Soviet writer, Z. B. Atlas in the Russian periodical "Bolshevist." Gold is the best international currency yet discovered, asserts Atlas, and should again be made the basis for exchange both internationally and domestically.

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# GEMS AND MINERALS

ARTHUR L. EATON, Editor

## ROCKHOUNDS IN 23 STATES JOIN ARIZONA SOCIETY

Mineralogical society of Arizona boasts members in 23 states. Rockhound Record goes to 69 postoffices, 24 of them in Arizona.

U. S. bureau of mines provided a motion picture on asbestos for March 15 meeting of the society.

C. H. Robinson, sr., president of mineralogical society of Washington, D. C. presented to the Arizona group a collection of petrified wood specimens gathered within ten miles of the national capitol building. The wood is conifer of early cretaceous period.

Members report obtaining some excellent specimens through trading during the past six months.

March exhibit in chamber of commerce building, Phoenix, displays examples of bloodstone or heliotrope and jasper, both in the rough and polished. Heliotrope is the March birthstone.

## LAPIDARY SOCIETY PLANS PERMANENT CLUBHOUSE

Sixty-eight charter members of Los Angeles lapidary society received certificates at fifth anniversary meeting held February 5 at Friday morning club house.

Two important items were discussed: first, the coming exhibit next May to be placed in Los Angeles museum for a month or more; second, consideration of an amendment to the constitution proposing a planning committee to work toward a permanent club building.

Leland Quick, one of the club founders, spoke on highlights of the past five years. Twenty-seven persons were present at the first meeting. Now there are nearly 200 members. Photographs of the group were taken.

## ARTCRAFT TO BE FEATURE OF LOS ANGELES SHOW

Southwest Mineralogists in Los Angeles are to hold their 7th annual show this year at the Harvard playground. The dates are April 7 and 8, and George Schwarz is in charge. The theme this year is "Bronze."

Entries are to be accepted in five competitive classes, as follows:

**MINERALS**—To be judged according to variety, quality and rarity.

**CRYSTALS**—To be judged according to variety, quality and rarity.

**POLISHED FLATS AND NODULES**—To be judged according to workmanship, variety of specimens and outstanding material.

**CABOCHONS**—To be judged according to workmanship, variety of specimens and outstanding material.

**ARTCRAFT**—This class includes polished material for personal adornment, articles of utility, and pure art. To be judged according to quality of workmanship, effort and originality.

## FOUND LARGEST DIAMOND DURING HORSESHOE GAME

Dr. Roy J. Holden, head of geology department, Virginia polytechnic institute, states that the largest diamond ever found in eastern U. S. has been reported. It was found twelve years ago by W. P. Jones while pitching horse shoes near Peterstown, West Virginia. At the time it was not identified, but kept merely as a curious stone. It was sent to the college for identification about a year ago.

The crystal is a hexoctahedron with all 48 faces present. Faces have dull luster somewhat like ground glass. High refractive power. Weight 34.46 carats. No other diamonds have been found in the area and the theory is advanced by Dr. Holden that this stone was brought in by river wash from metamorphic rock formations above the discovery site.

## MANY GEM CLUBS HAVE DISTINCTIVE EMBLEMS

Many mineral societies have selected emblems. Orange Belt uses twinned staurolite crystals. Searles Lake heads its official stationery with a doubly terminated crystal of hanksite. Southwest mineralogists, being a twin society of lapidary arts and earth sciences, have chosen as their symbol a twin quartz crystal. Marquette geologists association, Chicago, picture a rock sack, prospector's pick, hiking boots and a few crystals. Sequoia bulletin heading is a redwood tree.

Mineral notes and news, California federation bulletin, pictures the golden bear nugget found in Placer county and now owned by the federation.

George F. Beck, Ellensburg, Washington, writes on fossil woods of Yellowstone national park in February Mineral Notes and News. This is part one of a series by Beck.

## Mojave Desert Gem and Mineral Shop . . .

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Aquamarines, 12x14 and 12x16 m/m \$2 carat, also large sizes.

Rare blue precious Topaz and Golden Ceylon Quartz Topaz, fine color \$1 carat.

Carved Moonstones. Black Star Sapphires \$2 carat. Black Onyx drops \$3 pair.

Brilliant cut Montana Sapphires, also blue and golden.

Dozen Moss Agates, brooch size, \$12. Dozen Ceylon Garnets \$6.

Rare Hessonite and Green Garnets.

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50 ring stones, including genuine and synthetic—\$7.50. 12 genuine Opals or Cameos—\$2.75. Plus 20% tax. B. Lowe, Box 311, St. Louis 1, Mo.

Montana Moss Agates in the rough for gem cutting, \$1.00 per lb. plus postage. Elliott's Gem Shop, 26 Jergins Arcade, Long Beach 2, Calif.

Antique Jewelry: 12 articles antique jewelry, brooches, rings, lockets, chains, etc. \$3.60. 12 assorted hatpins—\$3.00. 12 stickpins \$2.75. B. Lowe, Box 311, St. Louis 1, Mo.

Jewelry stones removed from rings, etc. 100 assorted \$2.40. B. Lowe, Box 311, St. Louis 1, Missouri.

\$2.50 brings you prepaid six rare and beautiful crystallized Arizona minerals. Vanadinite, Dioprase, Wulfenite, Willemite, Chrysocolla, Azurite. Specimens 1½x2 or larger. Wiener Mineral Co., Box 509, Tucson, Arizona.

Choice Palm Root—Full of eyes showing root and trunk structure. Very colorful. Sliced for Cabochons. 25 cents per square inch. Satisfaction guaranteed. GASKILL, 400 North Muscatel, San Gabriel, Calif.

INDIAN RELICS, Curios, Coins, Minerals, Books, Old Buttons, Old Glass, Old West Photos, Weapons, Catalog 5c. Lemley Antique Store, Osborne, Kansas.

Wanted: to buy, sell and exchange specimens outstandingly rare and beautiful. Sam Parker, 2160 East Van Buren, Phoenix, Ariz.

AGATE JEWELRY AND OREGON AGATES—Ladies 10k gold rings, pointed or oval type, \$14.40 including excise tax. We make pendant necklaces, brooches, rings of several types. Sell plume and other agate by the slab. We guarantee satisfaction or will refund your money upon receipt of our merchandise. See that funds accompany your order. E. Lee Sigfrit, 211 Congress, Bend, Ore.

Let me make up your favorite cabochon cut stones into jewelry that is different. Each piece individually designed to suit the stone; hand wrought in Sterling silver; no "castings." Money refunded if not pleased. Women's rings \$3.00, men's rings \$4.00, bracelets \$6.00 to \$12.00, pendants \$4.00. THE SILVERSMITH (New Location), R.R. 2, Box 268, Santa Fe, New Mexico.

ATTENTION ROCK CUTTERS! Cabochon blanks of Chrysocolla 25c, Rhodinite 15c to 25c, Flower Obsidian, 15c to 25c, cutters assortment of 12 cabochon blanks \$1.50. If you wish to drop by please call Crestview 6-7931. de Marianne and Charles, 420 No. La Cienega Blvd., Los Angeles 36, Calif.

Beach Moonstones, Agate, Jasper, 3 cents each postpaid. Minimum \$1.00. Scarce. W. White, 410 N. Broadway, Redondo Beach, Calif.

FOR SALE—Gem Aquamarine, specimen beryl. Large star quartz pieces, 7 pound crystal of Brazil rutile, terminated, semi plume. Moss and sagenite agate. 6 inch sphere of variegated jasper, Montana sapphires and garnets up to ten carat gems uncut. The Desert Rats Nest, 2667 E. Colorado St., E. Pasadena, Calif.

Good cutting material, Petrified Wood, Agate, Jasper, \$1.00 per lb. Special mixed lots \$4.00 for 5 lbs. Variscite specimen material \$1.00 per lb. and up. Geodes and Ribbon Rock, 5 lbs. for \$1.00. Please include postage. John L. James, Tonopah, Nevada.

Send me 3 lbs. of good grade agate or ?? and I will cut you one large heart or 2 large cabochons, you pay postage. R. H. Justice, 343 West 87 St., Los Angeles 3, Calif.

For Sale: Blue green Bauxite, showy, rare, 2x3 in. 2 for \$1.50. Peridotite, beautiful diamond bearing rock, 2x3 in. 2 for \$2.00. Novaculite, various shades and colors; beautiful when cut and polished, 2x3 in. 6 for \$2.40. Postpaid. Thompson's Studio, 385 W. Second St., Pomona, California.

"April Showers Bring May Flowers," to the Rockies, and beautiful minerals to Jack for Spring offering. 6 Colorado beauties \$6.00. Buy 6 and I add one free. Jack the Rockhound, P. O. Box 86, Carbondale, Colo.

GEODES: Beautiful geodes just in. Beautiful crystals of Drusy quartz, cover layers of chalcedony, the outside red jasper. 5 inch ones \$6.00 ready to cut and polish, the small ones 1 to 2½ inches \$1.50. Jack the Rockhound, P. O. Box 86, Carbondale, Colo.

Tri-State District Specimens, no trades. I have the finest in Galenas, Marcasites, Dolomites, Ruby Sphalerite, Calcites and specimens showing various associations of the above minerals. No price lists, write for prices and descriptions. Boodle Lane, Box 331, Galena, Kansas.

A Post Card will get my new descriptive price list of Arkansas' finest Quartz Crystals. Novaculite, the new gem cutting material, together with listings of local minerals and some of the rarer minerals from the famous Magnet Cove, Arkansas district. Liberal discounts to dealers. J. L. Davis, 303 Ward Ave., Hot Springs, Arkansas.

The Rockhound Colony Grows: Plan to visit the only Gem Colony in America. Look us over and if you like us and we like you—join us and help make this colony something we'll all be proud to belong to. We have sold 25 lots to date to some of the best dealers and collectors in the fraternity. Lots 100x300 ft. \$150. We will not be able to do lapidary work until further notice. We still do silver work and sell gem material, cabinet specimens, minerals, books, cut stones and silver jewelry. Write for particulars. The Colorado Gem Co., Bayfield, Colo.

Sequoia mineral society held its eighth annual banquet February 2 at first Baptist church, Selma. The evening was spent in renewing acquaintances, viewing display, group singing and acquiring new specimens as prizes or by purchase. New officers were installed. Members displayed garnets in great variety of size, shape and color.

## AMONG THE ROCK HUNTERS

Arkansas mineralogical society has issued its first quarterly bulletin named Arkansas mineral bulletin. It deals with Hot Springs quartz crystals. Copies may be obtained from the society, Box 429-A, Rt. 1, Little Rock, Ark. Ten cents.

Bill Sanborn presented colored movies on Indian country of the Southwest at February 12 meeting of mineralogical society of Southern California. Pictures were taken in Mesa Verde, Monument Valley and La Plata mountains. Classes four and five of the new Dana were studied and members displayed minerals from those groups.

F. A. Willard delighted Imperial Valley gem and mineral society at March 3 meeting with kodachrome movies taken in Oregon. They showed a Rogue river boat trip, Willowa park, salmon fishing and an enchanting rock garden in Bend, Oregon.

Pacific mineralogist bulletin states that in the state museum, Tucson, Arizona, is a metallic meteorite shaped like a doughnut. It is about three feet in diameter. A local blacksmith had used it as an anvil for twenty years.

Marquette geologists association elected the following officers for the coming year: Stevens T. Norvell, chairman; Langdon Longwell, vice-chairman; Margery Scanlon, secretary-treasurer; Slesma Jenner, curator-librarian and historian.

January speakers of Marquette geologists association were unable to attend but gave their talks at February meeting. W. Stuart Cramer talked on rise, evolution and fall of the trilobite. Dr. Ball continued his series of geology lectures. Pinch hitters at January meeting were visitor Mildred Hopp who told of her trip to Parícutín and member Goetz who talked on bauxite, displaying a collection of aluminum minerals.

Northern California mineral society listed four February meetings: business meeting the second; micro-mount evening at laboratory the 16th, general meeting at public library, San Francisco, the 21st, and lapidary night at laboratory the 23rd. Carroll F. Chatham lectured on synthetic gem stones at general meeting. Chatham is believed to be the first person in U. S. to make synthetic emeralds. Crystals and faceted stones were on display.

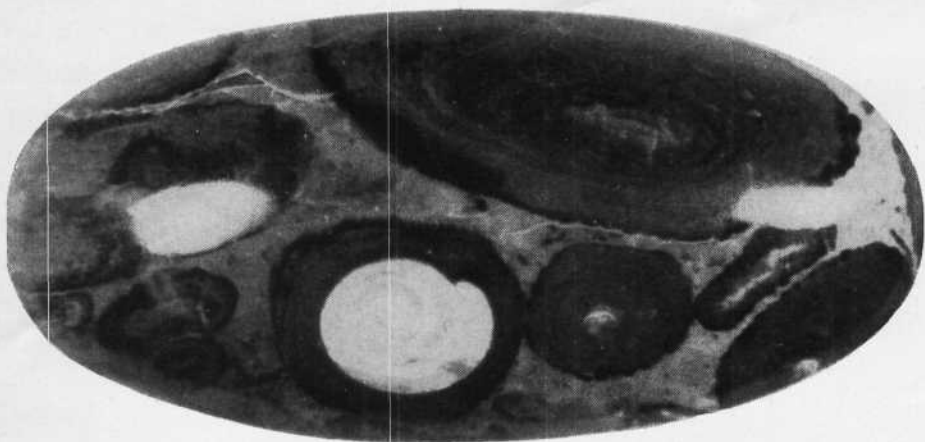
W. Scott Lewis talked on hidden beauties of the mineral world February 15 at Los Angeles museum, Exposition park. This was the first time that a lecture on minerals had been given in the museum series.

Mrs. Howard Fletcher spoke on fluorescence and its application at February meeting of Orange Belt mineralogical society. Mr. Fletcher showed many specimens under different types of modern fluorescent lamps. Mrs. Wedgewood reviewed her first rock trip made years ago in Rapid City, South Dakota where she visited Scotts mine and collected rose quartz.

Searles Lake gem and mineral society reports an approximate net profit of \$1470 taken at its '49er party. It is hoped that next year the event may be a two-day affair.

Largest diamond ever found in the East Africa fields was recently picked up in the central part of Tanganyika territory, near the shores of Lake Tanganyika. It weighed 120 carats.





*This rare find was made by Edw. Lang—an ammonite fossil in palm root. The ammonite is replaced by quartz. Matrix is grey-brown and the stone took a fine polish. He made the discovery when he started sawing through the palm root. "Lap experts never make finds like this," Lang wrote. "It is only done by fools like me."*

Charles Clark, Burbank, lectured on copper at February meeting of San Fernando Valley mineral and gem society. George Parker, North Hollywood, talked on modern technique of the first phase of gem cutting. Exhibited were copper specimens and sea shells. A. L. Anderson entertained with colored pictures of Santa Barbara and San Juan Capistrano missions, Red Rock cañon and Palm Springs.

Chuck Jordan held open house February 18 for members of Mineralogical society of Southern California.

Gladys Babson Hannaford spoke on the diamonds in your life at February 6 meeting of New Jersey mineralogical society, using slides and other display material. Mrs. Hannaford is associated with the De Beers syndicate.

Not far from the large Kyanite mine in the Cargo Muchacho mountains, in Imperial county, California, is a small mineral deposit which has caused much argument among scientifically inclined persons. The best opinion seems to be that it is sericite. Many small masses taken from the open pit are snow white in color, granular to fibrous in structure, with rather a brilliant sparkle on broken edges. This is true sericite, a scaly form of finely broken up muscovite mica. Much of the sericite taken from the pit, however, is stained by iron to a brownish hue.

George F. Beck, Ellensburg, Washington, has identified as palm some petrified wood sent by Fred Rorer of Albany from upper Crooked River. It is the first fossil palm that has come to Beck's attention from sources north of the Mojave. Beck states that many unknown hardwoods are found in the Sweet Home district, Oregon. Sectioning emphasizes their exotic character. One specimen from a large log section shows by its structure that it was originally an exceptionally light wood, possibly half the weight of balsa. Apparently many of the Sweet Home woods have become extinct with no living counterparts.

Mrs. Minna Bland, school teacher at Luna, New Mexico, writes to Desert Magazine: "Here we have fossils galore and quartz of almost all varieties. This part of the country has not been overrun with 'rockpicks' so we still have some beauties. If any of the Desert Magazine readers are coming this way I would enjoy gossiping over my rock collection which I think is good, and I can show them a few places near the road where they can find specimens that require no ration stamps."

Thomas S. Warren, head of Ultra Violet Products Inc., talked on fluorescence and phosphorescence of minerals at February 15 meeting of Los Angeles mineralogical society. He showed part of his wonderful collection of fluorescent minerals. Members displayed their specimens and brought suspected fluorescents for identification by Lehman and Schlagel. At March meeting Dr. Robert W. Webb of U. C. L. A. was scheduled to tell about his work in collaboration with Dr. Joseph Murdock in connection with revised edition of bulletin 113—Minerals of California—published by California division of mines. Dr. Webb is an honorary life member of the society. Pacific Mineralogist for February carries an article on Luminescence. Ernest Peterson, chairman of committee on mineralogy in the schools has prepared a monograph on feldspar intended as a pattern for descriptions to accompany each mineral in school display cases.

Dean Roberts of the School of Mines at the University of Washington was guest speaker at the February meeting of the Seattle Gem Collectors' Club. His topic was Aluminum mining and producing for industrial use. Dean Roberts also showed excellent pictures from his private collection, of various mining operations in the northwest. Mrs. Arthur Foss made a very appropriate and unusual arrangement for the dinner table. She implanted a fluorescent light in a little house, which shown out upon a beautiful garden of fluorescent stone. The garden was complete with flowers, paths, and even a rock-hound relaxing in the shade of a tree.

A deposit of moss agate is reported from Lander, Wyoming. The material contains white and green moss.

W. Dart, formerly of Murfreesboro, Arkansas, has settled in Goldfield, Nevada, where he has established a business in rocks and collectors' bottles.

F. Howard Brady, geologist of Sheridan, Wyoming, reports a fossil ammonite shell measuring 46 inches in diameter. It was found near Wyola, Montana.

Charles W. Abbott, field trip chairman of Los Angeles mineralogical society plans a trip in March to Azusa to see the mineral collection in Azusa library then to the hills to collect fluorite specimens.

WPB has tightened restrictions on use of lead for civilian needs in order to make more of the metal available for war purposes.

John Fox, sr., talked on copper at February 21 meeting of Searles Lake gem and mineral society. Copper minerals also were featured on display table. Field trip March 4 took the group to recently purchased Chris Wicht estate where house and grounds were cleaned and put in order for use of members.

Sound and color pictures of Rocky mountain diversion tunnel entertained Southwest Mineralogists at February 16 social night. Harold Eales was in charge of February 23 study class, subject, Identification and Mineral Testing.

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10"	22c	6 ft.	22.00	15 lbs.
12"	25c	5 ft.	26.50	20 lbs.

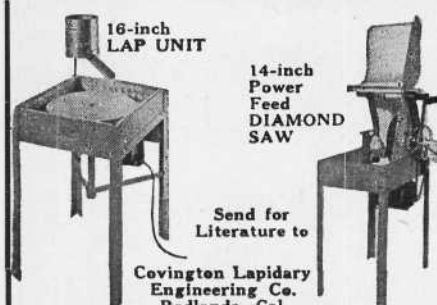
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## HOW TO MAKE A "CARRY-ALL"

Stevens T. Norvell of Marquette geologists association, Chicago, suggests constructing a collapsible one wheeled barrow to transport heavy rocks from field to automobile.

Make the frame in the shape of a capital "H" but with two crossbars, overall length about six feet, width two feet, distance between crossbars two feet. A piece of canvas fills in space between crossbars. Up to this point it looks like a stubby stretcher and can be used in this way by two men. The minerals rest on the canvas.

The frame can be made of pipe loosely screwed together so it can be readily taken apart for storage in the car trunk, or it can be made of wooden 2"x2" pieces held together with bolts and wing-nuts.

Now we go from the stretcher stage. A single wheel of fair size and sufficient strength is attached so that it is directly below the load. This takes the load off the two porters. Without too much trouble it can be made into a sort of one-man vehicle, a kind of wheel-barrow. To do this the wheel is removed from beneath the load and placed between the shafts at the front end. The wheelbarrow can be pulled or pushed by one man.

Some situations will be encountered, no doubt where the contraption is of no material aid and may upon some occasions be somewhat of a hindrance. In such cases it can be left in the car trunk. There will be plenty of opportunity to use it when it can be a real help.

## IMPORTANCE OF MAGNESIUM PREDICTED FOR POSTWAR USES

R. P. Lansing, vice-president of Bendix aviation corporation, predicted the use of magnesium for many household and industrial purposes at the first annual meeting of the magnesium association in New York. The light weight of this metal is its chief recommendation. The only lighter metals are lithium, potassium, sodium and calcium and these are unfit for structural uses because of their extraordinary chemical activity, as well as for many other reasons. The great dangers in the use of magnesium are the ease with which it catches fire and the terrific heat with which it burns. War-time research has conquered much of this danger, so that this light metal can now be used in the manufacture of knitting machines, bread slicers, hand tools, radios, cameras, and almost countless items for household use.

The supply of magnesium apparently is limitless. All salt sea water contains a percentage of magnesium so that most of the present supply is obtained from this source, although much metal has been obtained from the ore magnesite in Nevada, by Basic Magnesium, incorporated.

## CADMIUM

Cadmium once considered among the very rare metals, is now common. Most of the 2½ million pounds obtained each year is taken from Greenockite (CdS) or, by electrolysis, from the zinc sphalerite (ZnS). Cadmium is a dull, silvery colored metal which melts at 321 degrees Centigrade or 621 degrees Fahrenheit.

Greenockite forms honey yellow to orange colored hexagonal xls, with a hardness of 3 and specific gravity of 3.5. This rich ore produces 77.7 per cent cadmium and 22.3 per cent sulfur. When heated it turns red and loses the sulfur.

Cadmium is a metal of many uses. As one of the soft metals, it is used in the manufacture of electric fuses, soft plugs and dental alloys. It melts easily and is used as a protective coating on many tools to preserve them from rust. The lemon yellow cadmium sulphide as well as other colored compounds of the same metal, are used as pigments in both house paints and artists colors.

## CALEDONITE

Among the rare minerals of copper is Caledonite. It is a basic sulphate of lead and copper with the rather imposing formula  $2 (Pb,Cu) \cdot O \cdot SO_3 \cdot H_2O \cdot CO_2$ . It usually occurs as tiny orthorhombic crystals, ranging in color from verdigris green to bluegreen, and coated on the surface of some other material. The sparkling green crystals often resemble diopside, which occurs in much the same way, but their hardness of 2.5 and gravity of 6.4 make them easy to distinguish from diopside hardness 5, gravity 3.28. There are several foreign occurrences of caledonite as well as a few deposits in certain parts of California, Arizona, New Mexico and Utah.

## Synthetic and Simulated Gems

Many dealers in genuine and imitation gems in recent years have placed the words "simulated rubies," "simulated emeralds" and in one case noted "genuine simulated rubies" in their advertisements, without bothering to explain to the public the meanings of the words. The word "simulated" can be applied truthfully only to imitations which bear no relationship whatsoever to the real gems, and which have been made merely to resemble or look like the real article. They are made of paste, "strass," or even merely glass! Synthetic stones are manufactured also, but are carefully produced from identically the same materials, and have the same hardness and often most of the other physical characteristics of the real gem.

The Soviet Union, which has large deposits of talc, is using it instead of firebrick for lining of the firebox in boilers and engines. It has been known to stand up under a temperature of more than 3000 degrees fahrenheit, which is far above the melting point of most metals and surpasses all boiler temperatures. Talc has a hardness of only one, which makes it easy to cut and shape. It is claimed that it heats and cools more rapidly than most firebrick, a fact which makes it a fuel saver.

## Cogitations . . .

Of a Rockhound

By LOUISE EATON

Rockhouns always has time to talk rox. It makes no matter what they're doin when sumwun comes along to discuss specimens. They may be washin dishes 'r teachin school 'r building houses. They stops their busy-ness right away an' converses. They look over all available material an' gets a pleasant uplift from contact with a kindred spirit.

A field trip by eny other name would be as sweet. Sumplaces they goe in caravans instead uv on field trips an' sum even call field trippin followin the leader. Eny goin whatever into rock territory would shure be welcome.

Didja ever notice how fast time flies when rockhouns gets together at a meetin? Or even jus talkin mongst themselves. Furst thing yu know it's already tomorrow an' way past time to go home. It's shure fun to swap talk an' rox.

Live and let live is a good tenet for desert dwellers an' rockhouns. It applies to ideas as well as to surroundins. The other fella has a right to his opinions an' view point too, if they don't interfere too much with the common welfare.



# AMATEUR GEM CUTTER

and polishing equipment. Leland Quick, who conducts this department, is former president of Los Angeles Lapidary society. He will be glad to answer questions in connection with your lapidary work. Queries should be addressed to Desert Magazine, El Centro, Calif.

By LELANDE QUICK

There are many amateur gem cutters who never give a thought to wearing as jewelry any of their own creations or gems processed by others. I have never had a personal yen to wear any of my own handicraft although I have bedecked others with it. Recently I did get a hankering to wear my birthstone—an amethyst. It has always been a favorite with me and I determined that I would get a good one of deep color and BIG. But I scoured the wholesale marts and there was not such a thing to be had as a Russian amethyst of good violet color of any size without bad feathers, and I abandoned the idea with great reluctance when the thought occurred to me that I might have mounted a fine Alexandrite which I have had in my collection for several years. And so I took one weighing 11.2 carats and had a superb mounting made in gold. Now I have a ring that fascinates me daily. At night it is a beautiful columbine red, and in the daytime it ranges from slate blue to emerald green. It has caused so much comment among my friends that I have refused twice twenty times to sell a similar stone weighing 9.75 carats.

I have seen several Alexandrites and always admired them but I suppose I was prejudiced because they are synthetic, which is silly because a synthetic stone does not necessarily mean an imitation. When a mineral is synthesized it possesses all the characteristics of the original. I had been told by several persons that all Alexandrites more than three carats were synthetic. When I checked with the American Gem Society I learned that most of the Russian Alexandrites were small but that several have been cut from Ceylon stones weighing 20 carats and valued at \$10,000 each or \$500 a carat, in contrast to the wholesale value of synthetic spinel, or Alexandrite-like corundum, of four to six dollars a carat.

The Alexandrite, named for the Czar Alexander because it was first discovered on his 21st birthday in 1833 in the Ural mountains, is orthorhombic chrysoberyl with a hardness of 8½. The true gem is emerald green in daylight and columbine red or raspberry in artificial light, caused by the difference in composition of artificial light and sunlight. The color change is caused by traces of chromium, but in synthetic corundum, sold as Alexandrite, vanadium (closely related to chromium) is the coloring pigment (Kraus). Robert Shipley states that large stones of good quality synthetic Alexandrite are also rare and he says they are synthetic spinel. They are in great demand now and I can think of no stone that is more appropriate for a gentleman's ring and certainly there is none that will give more delight.

Arrangements have been completed for the annual show of the Los Angeles Lapidary society to be held in the Museum of History of Science and Art in Exposition Park, Los Angeles. It will open May 12 and continue for two months although only on May 12 and 13 will members be hosts at an open house to their friends. On these days the exhibits may be viewed in the evening hours. To those outside the Los Angeles area I might say that the Los Angeles Museum compares very favorably to the Field Museum in Chicago and it compares favorably to a combination of the Museum of Natural History and the Metropolitan Museum of Art in New York. This is the first important recognition of amateur lapidary work as an art form of the people and it is with pardonable pride that the Los Angeles Lapidary society pre-

sents this great exhibition as a fitting climax to its fifth year of existence.

J. Howard McCornack, chairman of exhibits, is preparing for award ribbons in many classes such as cabochons, jewelry, faceted gems, cameos, spheres and cubes, flats and nodules, novelties and practical arts. There will also be a separate room for a fluorescent display and an assembly of lapidary machinery, much of it developed by society members.

This is a far cry indeed from the amateur lapidary art as it existed only five years ago when the society was founded. One has only to refer to the mineralogical magazines and compare the advertisements and articles relative to gem materials and lapidary machinery that appeared then with the current issues to determine the tremendous interest that has developed through the war years. It is inevitable that every sizable community will have its lapidary society five years from now and it becomes a profound duty of existing societies to harness the great enthusiasm and interest that has been initiated and pass on the secrets learned the hard way in these past few years. It is indeed hoped that the names of those who become interested in the art to the point of wanting to do something about it will be garnered and intelligently used by the museum authorities and the sponsoring society. The week doesn't pass that I fail to receive inquiries from every section of the country about how to begin with the lapidary art. I predict that after victory there will not only be hundreds of societies but there will be new magazines catering to the lapidary instead of using gem cutting as a side issue of mineralogy. However THE MINERALOGIST and ROCKS AND MINERALS have been awake to the opportunity and now have far more lapidary items and advertisements than they had as recently as a year ago. A great event is approaching in this Los Angeles show and if you are in Los Angeles at the time you should not miss it even if you don't know what cabochon means. Chairman of the show is Archie B. Meiklejohn, who managed the exhibit two years ago and had so much to do with the success of the first two exhibitions.

At last the makers of grinding wheels have gotten together and standardized the markings of wheels so that you no longer have to remember which company's product you are using before you place an order. The symbols are very complicated and need a chart for explanation which can be had for the asking from any of the abrasive manufacturers. For instance the old style No. 220 J Bond wheel of the Carborundum Company is now designated as C 220-06-VG. The C stands for "grade", the 220 for the grit size, the 6 for the grain combination, the V for vitrified and the G is the manufacturer's record. In other words the old 220 J Bond is now known as 220 VG for short.

## DID YOU KNOW . . .

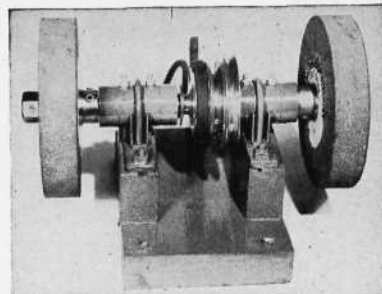
- Margarite is the Greek word for pearl.
- As long as 300 years ago a single pearl found in the Gulf of California was sold to the King of Spain for \$180,000.
- Charles I of England always wore a pearl in his right ear.
- Romans (men and women) wore three rings on each finger, except the middle finger of each hand. They wore a ring on each joint and had heavy rings for winter and light rings for summer.

This page of Desert Magazine is for those who have, or aspire to have, their own gem cutting

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By RANDALL HENDERSON

FROM military and naval sources come warnings to people on the desert to keep hands off of unexploded bombs which may be found occasionally in ranges adjacent to bombing targets.

The instructions are that if such bombs are found, they should not be tampered with—but reported to the nearest air station where demolition experts will be available to dispose of them.

The practice bombs generally in use, and which in rare instances do not explode when they reach the earth, are about three feet in length and have a four-bladed tail-fin. An explosion due to tinkering may cause serious injury to those close at hand.

\* \* \*

Nomination of William A. Brophy, Albuquerque attorney, to succeed John Collier as U. S. Indian Commissioner, is now before the senate for ratification. Bearing on Brophy's appointment, I have two clippings on my desk, taken from the *Albuquerque Journal* on successive days.

One of them contains an endorsement of Brophy from the governors of the Pueblo tribes. It quotes Abel Paisano, secretary of the All-Pueblo Council, as stating that the governors have known Brophy "for a long time and they like him. He has done a great deal for the Indians."

The other clipping states that Deshna Clah Cheschillige, president of the Navajo Rights association, and Sam Ahkeah, vice-chairman of the Navajo Tribal Council, are flying to Washington "to voice a last minute objection to the appointment of William A. Brophy as Indian Commissioner."

"He's not a livestock man," Deshna Clah is quoted as saying. "An attorney can't know what our livestock problems are, and so we want Chester A. Faris." Faris is secretary of the Indian Rights association.

So, the Pueblo Indians want Brophy. The Navajo are against him. And if you were a congressman who knew none of the principals in the controversy, how would you vote? Well, I don't know either.

It all adds up to this: That the Indian problem is a very complex thing. And neither those who regard all redskins as lazy and dirty, nor those who shout about the injustices done the red-man and then do nothing about it, are helping the situation.

John Collier at heart was one of the best friends the American Indian ever had. He worked many years in behalf of their betterment. But as commissioner he was generally disliked and often distrusted.

Unfortunately, among those whites who have been sincere in their desire to improve the status of the Indian, there have been two widely divergent schools of thought. One school would solve the difficulty by absorbing the Indian into the civilization of the white man and eventually doing away with the reservation as it is now defined. East of the Rocky mountains this program has met with considerable success.

The other group, more familiar perhaps with the character of the desert Indian, would make no effort to impose the white

man's culture on the tribesmen, but rather would encourage and help him to acquire economic independence and political equality through the channels of his own traditions and way of thought.

I do not know which would be the most effective policy for desert Indians—and neither do you. Over a long span of time both probably would lead to the same goal of achievement. But I am sure that the past policy—of vacillating between these two philosophies—is not the right course. It is to be hoped that the new Indian Commissioner—whoever he may be—will have the vision to set up a long-range program, and then carry it out with unwavering adherence in the detail of each day's decisions.

\* \* \*

What is to be done to preserve the desert country from vandalism? I wish I knew the answer. Geo. A. McCullen writes from Desert Moon ranch that during Paul Wilhelm's absence with the fighting forces in France, vandals have broken some of the windows in his "Vagabond House" at Thousand Palms. And James E. Cole, custodian of the Joshua Tree national monument reports that within recent months some one has set fire to the dry frond skirts of nearly all the 110 palms in Lost Palms canyon in the Eagle mountains of Southern California.

I do not enjoy reporting such things. But I have a feeling that if enough indignation can be aroused among those who disapprove that kind of destruction—and that includes the great majority of American people—a way will be found to solve the problem.

\* \* \*

In the U. S. Land Office in Los Angeles they've had quite a stampede of Jackrabbit homesteaders during the past month. Fifteen hundred applicants signed up for 5-acre leases on the public lands of the Southern California desert, most of them without even seeing the rocks and sand on which their desert cabins are to be located.

I am told the list includes quite a colony of movie people, with several well known names. All of which is a fine idea. The atmosphere of the untamed desert is good for city folks.

In some respects, Hollywood and the desert are as far apart as the two poles. One is a man-made environment—a place of sophistication and make-believe, a world which lives by ballyhoo and a rather superficial brand of hero-worship. The other—the desert—is genuine and unpretentious. If one finds beauty here, it merely is a reflection of the beauty in one's own soul. And if it is ugly, that also is a shadow of something within. The desert goes its own silent way—the friend or foe of rich and poor alike, according to their understanding, and their willingness to abide by the disciplines which Nature imposes on all without favor.

I think I would like to have some Hollywood folks for neighbors out in the Jackrabbit colony. But I hope they'll leave Hollywood on the other side of the mountains and just be simple genuine human beings when they come out here. The only stars which have any rating in the desert are the diamonds which glitter in the dark canopy overhead at night.





### LAST WORD ON THE BLACK WIDOW SPIDER

Black Widow spider has been making the newspaper headlines for many years. And now it has advanced a step further along the road to fame—or at least, notoriety—and become the subject of a book.

**BLACK WIDOW**, America's Most Poisonous Spider, is the title of a 222-page volume which includes just about everything that has been learned down through history concerning *Latrodectus mactans*, which is the scientific manner of identifying this member of the spider family.

Raymond W. Thorp and Weldon D. Woodson, both of whom have contributed to *Desert Magazine*, collaborated in the preparation of the book. They have brought together the results not only of their own years of study in laboratory and field, but their research also has extended to every available source of spider fact and lore both past and present.

*L. mactans* is equipped with a pair of fangs and sacs containing a very potent venom. Of the 1498 reported cases of bite from this spider in United States from 1726 to 1943, 55 have resulted in death. Although the spider has been found in the five major continents, its favorite abode in the United States appears to be California, since 32 of the reported deaths occurred in this state.

The reasons why death or even serious illness does not always result from the bite are explained in considerable detail by the authors.

While the book presents all available scientific data relating to Black Widow as well as much information about tarantula and other species, the volume is written for the lay reader.

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Published by The University of North Carolina Press, foreword by Dr. Emil Bogen. Illustrated. \$3.00.

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